

**MATERIALS • SYSTEMS • SOLUTIONS**

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{v1.3}

## Sheet Register

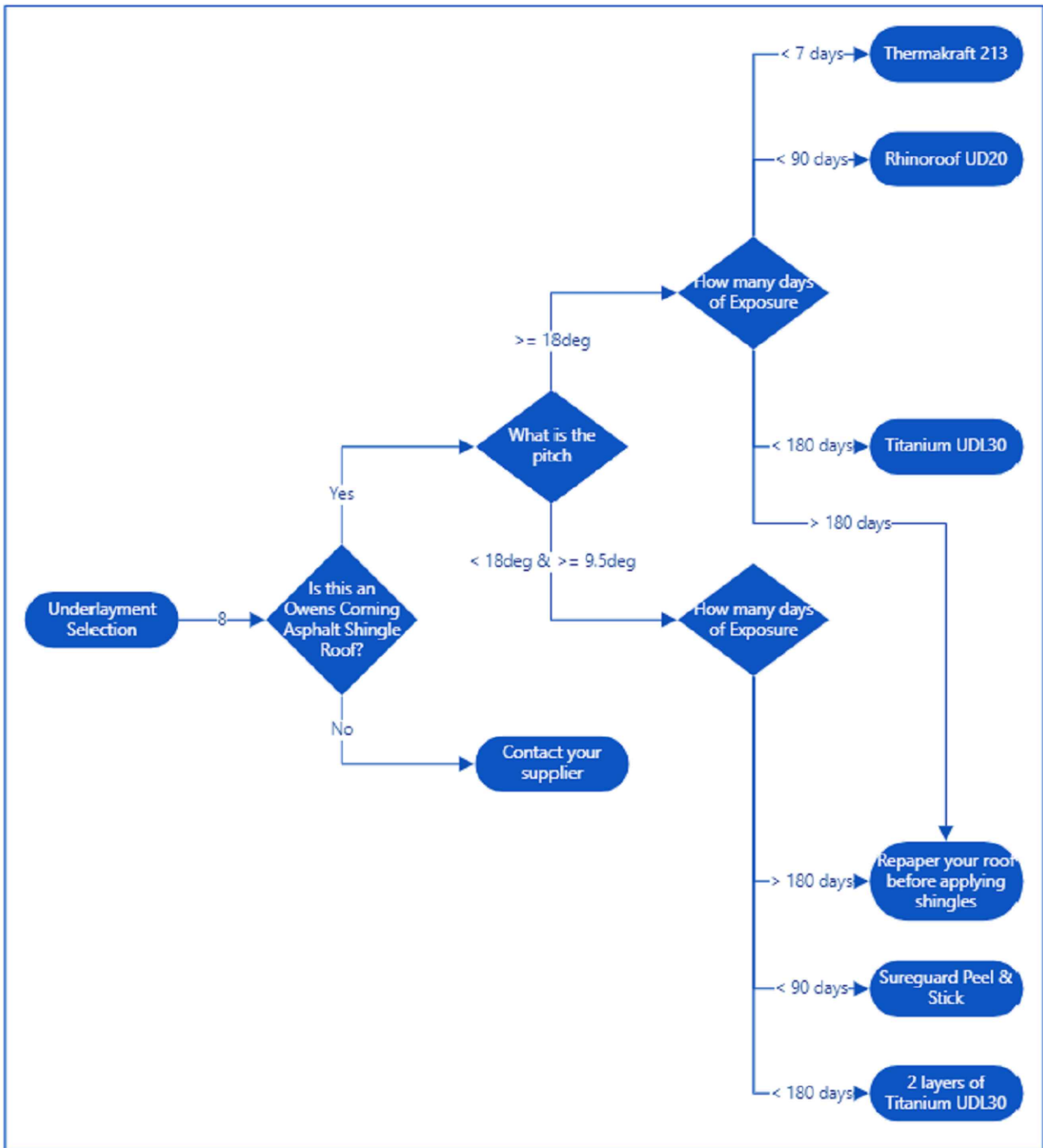
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3.1	Penetration Openings	3D Cutaway Details	v1.2
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3.3	Box Vent Installation	3D Cutaway Details	v1.3
3.4	Typical Flashing Dimensions	Sectional Details	v1.2

# CONSTRUCTION NOTES

READ THOROUGHLY BEFORE COMMENCING WORKS:

- All materials to be dry at the time of application.  
.: Under no circumstances should any materials be torch dried.
- All sarking and substrate materials to be dry prior to laying of waterproof membrane.
- Ensure all condensation and rainwater has thoroughly evaporated prior to commencement of works.
- All flashing and fixing materials to be corrosion resistant and approved for the corrosion zone as specified by the New Zealand building code and NZS 3604:2011.
  - Sea spray zones - type 304 stainless steel
  - All other zones type 304 stainless steel or hot dip galvanised with additional protection as per NZS 3604:2011 4.4.4 and 4.4.5 requirements.
- For high, very high and extra wind zones, the number of fixings per shingle shall be 6 nails per tile and all shingle rakes and eaves to be glued with approved roofing cement.
- Plywood substrate to be laid with staggered joints to sheet edges.
- All sheet edges shall be supported with nogs or roof framing for fixing unless a structurally tested and approved tongue in groove edge shall provide equivalent or better support.
- Galvanised 'H' clips may be used for square edge plywood.
- All sheets must be laid with a 3mm inter sheet expansion joint plywood substrate shall be laid with the face grain at right angles to the supports.
- Under no circumstances shall the sarking / substrate be laid diagonally.
- All sarking / substrates shall have a max of 18% moisture content at the time of application.
- All underlays must be laid with MINIMUM 100mm end/edge laps.

# MEMBRANE SELECTION MATRIX



# FIXING SPEC.

READ THOROUGHLY BEFORE COMMENCING WORKS:

## - Roof Penetrations

Roof decks / substrates should be dry, well-seasoned 150x25 boards or exterior grade plywood.

## - Underlay

Apply appropriate underlay over plywood substrate in accordance with NZBC E2 requirements 8.1.5.

Available Membranes Include:

- Titanium UDL30 - Synthetic Underlayment - Nailed/Cap Nailed
- Rhinorooft U20 - Synthetic Underlayment - Nailed/Cap Nailed - Stapling possible
- Sureguard - Synthetic Underlayment - Peel and Stick - Self Adhered
- ThermoKraft 213 - Ragfelt, bituminous Kraft Paper - Stapled - Nailed/Cap Nailed possible

\* To determine suitable underlay for your project please refer to Membrane Selection Matrix on Sheet 0.4

All roof underlays shall have laps of no less than 100mm, roof underlays shall be laid horizontally with the upper sheets lapped over lower sheets to ensure water is shed to the outer face of the underlay.

## - Roof Pitch

- Minimum acceptable roof pitch = 9.5°.
- For roof pitches 9.5° - 18° completely cover roof with 2 layers of underlay or 1 layer of 'peel and stick' in accordance with manufacturers specifications.
- For roof pitches 12° and greater completely cover roof area with 1 layer of roofing underlay.

## - Shingle Starter Course

Use Owens Corning starter strip or a strip shingle inverted with the head-lap applied at the eave edge with at least 10mm trimmed from the end of the first shingle, starting at the rake edge and overhanging the eave 12mm to 20mm. Fasten 50mm from the lower edge and 25mm from each side. Shingles may be applied with a course alignment of 45° on the roof.

### - First Course

Start at rake and continue course with full shingles laid flush with the starter course.

### - Second Course

Start at the rake with the shingle having 145mm trimmed off and continue across roof with full length shingles.

### - Third Course

Start at the rake with the shingle having 285mm trimmed off and continue across with full length shingles.

### - Fourth Course

Start at the rake and continue across with full length shingles across roof.

### - Fifth and Proceeding Courses

Repeat the application as shown for second, third and fourth courses. do not tack shingles straight up the roof.

## - Fasteners

Always nail through the fastener line.

Shingling nails: Stainless Steel Gun Nails with 10mm head, semi ring shanked, 32mm or 25mm in length with a 3mm diameter shank. In cases where applying shingles to a roof that has an exposed overhang, (for new roofs only), 20mm ring shank nails may be used from the eave edge to a point up the roof that is past the outside wall line 25mm ring shank nails allowed for re-roof.

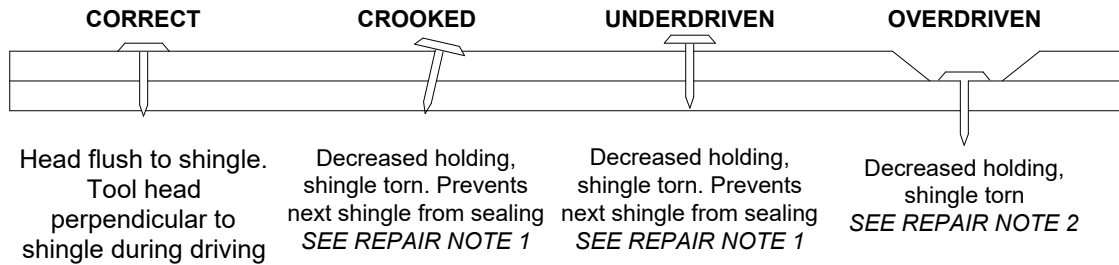
## - NOTE:

- An improperly adjusted nail gun can result in underdriven nails that can cause a lipped appearance and prevent correct sealing.
- Fasteners should be long enough to obtain a 19mm embedment or penetrate through substrate whichever is less.

# FASTENERS

While nailing is the preferred method for fixing raised roof profile shingles, Building Agency accept fastening methods according to and in accordance with Owens Corning specifications.

**ALWAYS NAIL THROUGH THE FASTENER LINE.**



**REPAIR NOTE 1:**

FLATTEN NAIL HEAD TO PREVENT INTERFERENCE WITH NEXT SHINGLE

**REPAIR NOTE 2:**

DRIVE ANOTHER NAIL NEARBY. SEAL OVERDRIVEN NAIL WITH SPS BUILDING BITUMINOUS ROOFING SEALANT

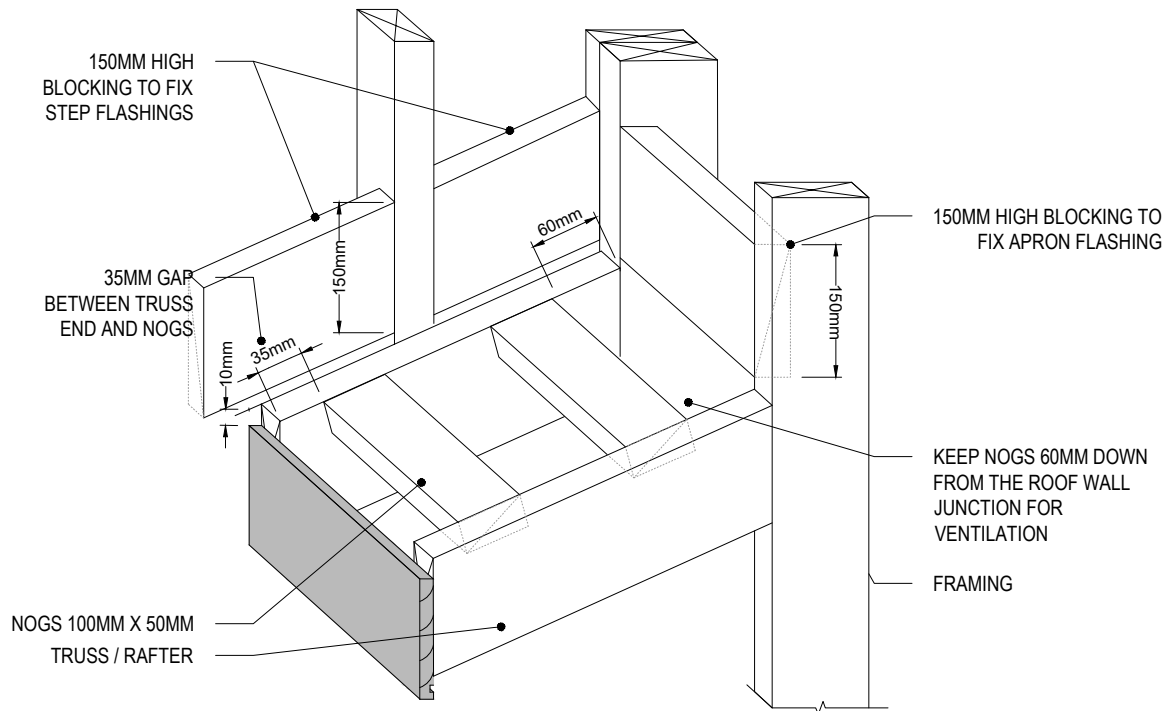
**MATERIAL:** Refer to NZS 3604:2011 section 4.4 for corrosion protection requirements

**NAILS:** 10mm Head 12 gauge roofing nails.

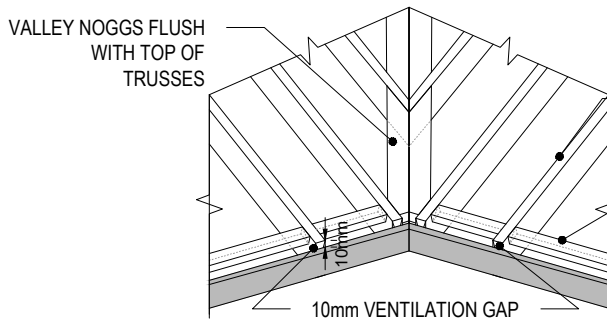
Building Agency recommends 32mm nails for new roofs and roof overs.

In cases where applying shingles to a roof that has an exposed overhang 20mm ring shank nails are allowed to be used from the eaves edge to a point up the roof that is past the outside wall line.

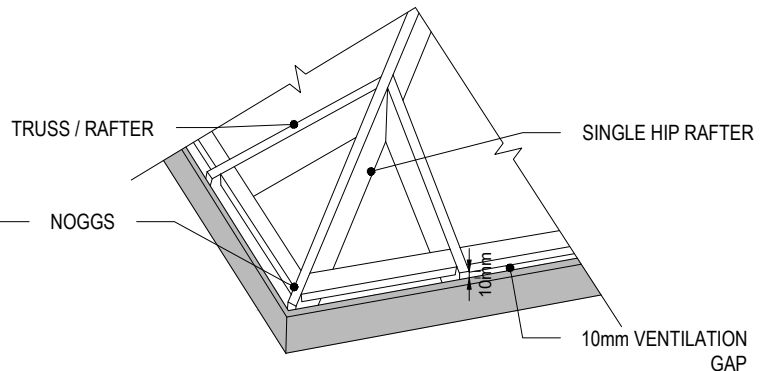
**NOTE:** an improperly adjusted nail gun can result in under driven nails that can cause a lipped appearance, this can prevent correct sealing.



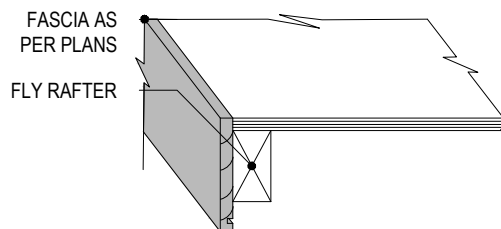
1. WALL - ROOF INTERSECTION FRAMING



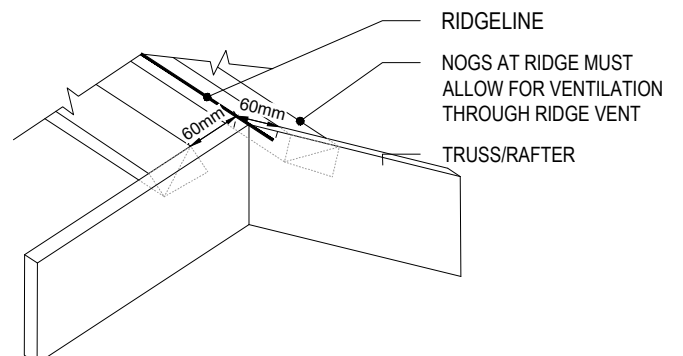
2. VALLEY FRAMING



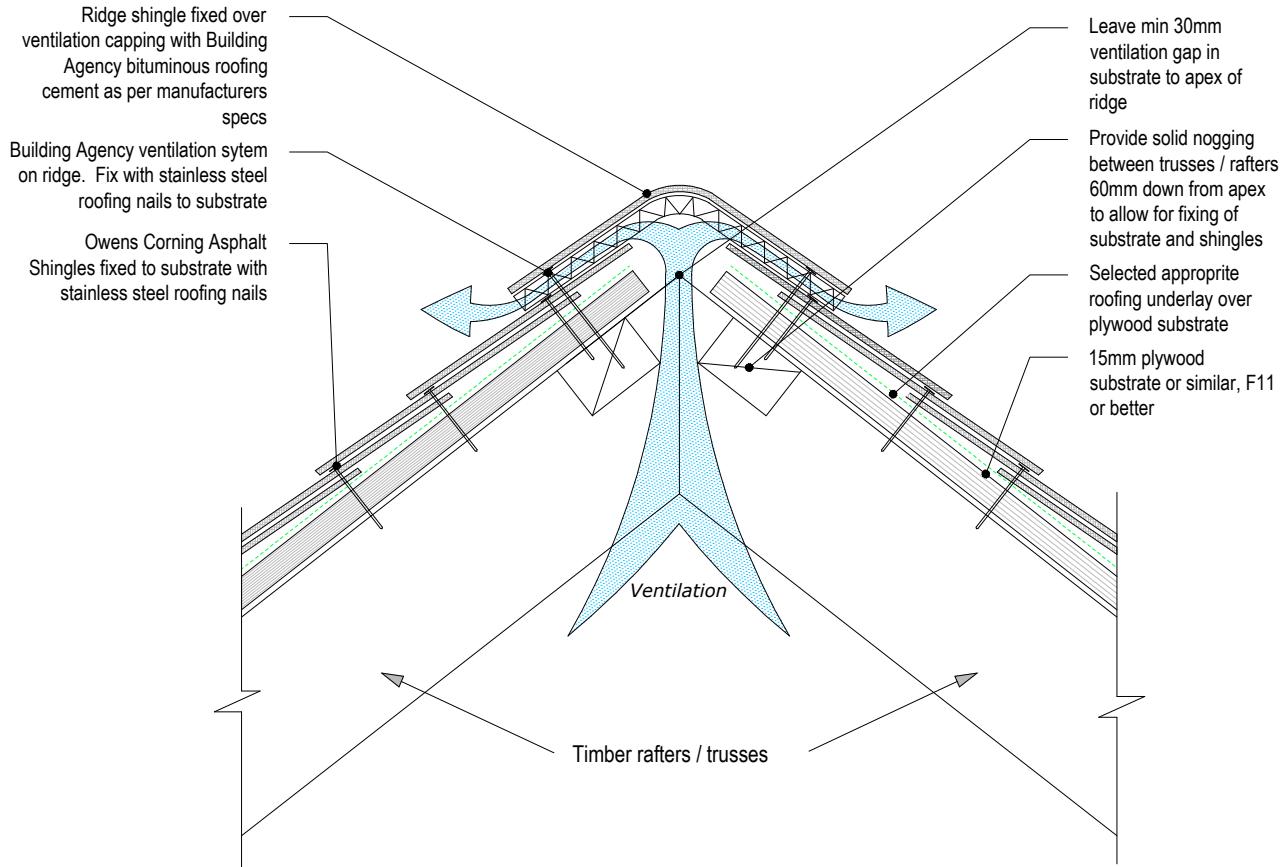
3. HIP FRAMING



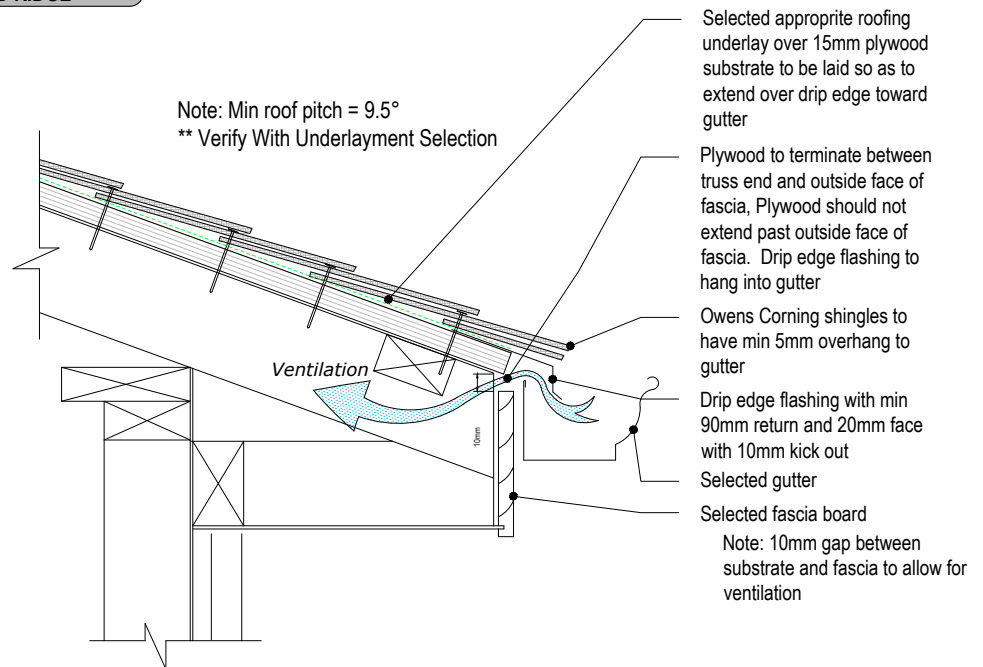
4. BARGE FRAMING



5. RIDGE FRAMING



1. VENTED RIDGE



2. EAVE



Framing as per plans  
 Provide continuous support to flashing upstand  
 Provide solid noggling between trusses / rafters to allow for fixing of substrate and shingles  
 Rafters / Trusses as per plans

Building wrap to be laid over flashing  
 Butynol or EPDM apron flashing to provide approx 150mm cover to the shingle weathering strip (May vary depending on shingle profile)  
 For aesthetic purposes, shingle to be fixed over apron flashing with Building Agency bituminous roofing cement as per manufacturers specs  
 Building Agency Owens Corning Asphalt Shingles fixed to substrate with stainless steel roofing nails and Building Agency bituminous roofing cement  
 Selected appropriate roofing underlay over 15mm plywood substrate

**NOTE:**  
 When venting is not possible/allowed for at the top of a roof line: (e.g. at and Apron Flashing or Ridge)  
 Box vents other approved cavity vent must be used.  
 Refer to Sheet 3.2 for selection criteria

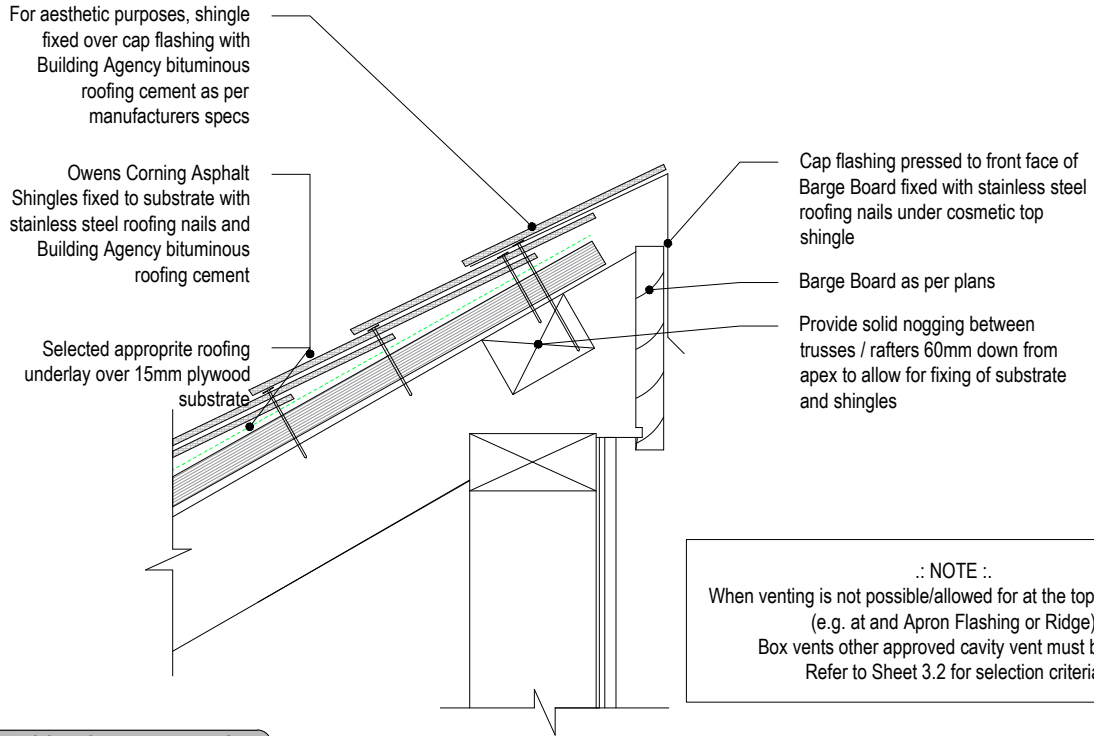
**1. APRON FLASHING**

Framing as per plans  
 Provide continuous support to flashing upstand  
 Leave min 30mm ventilation gap between nogs and Plywood to framing  
 Provide solid noggling between trusses / rafters to allow for fixing of substrate and shingles  
 Rafters / Trusses as per plans

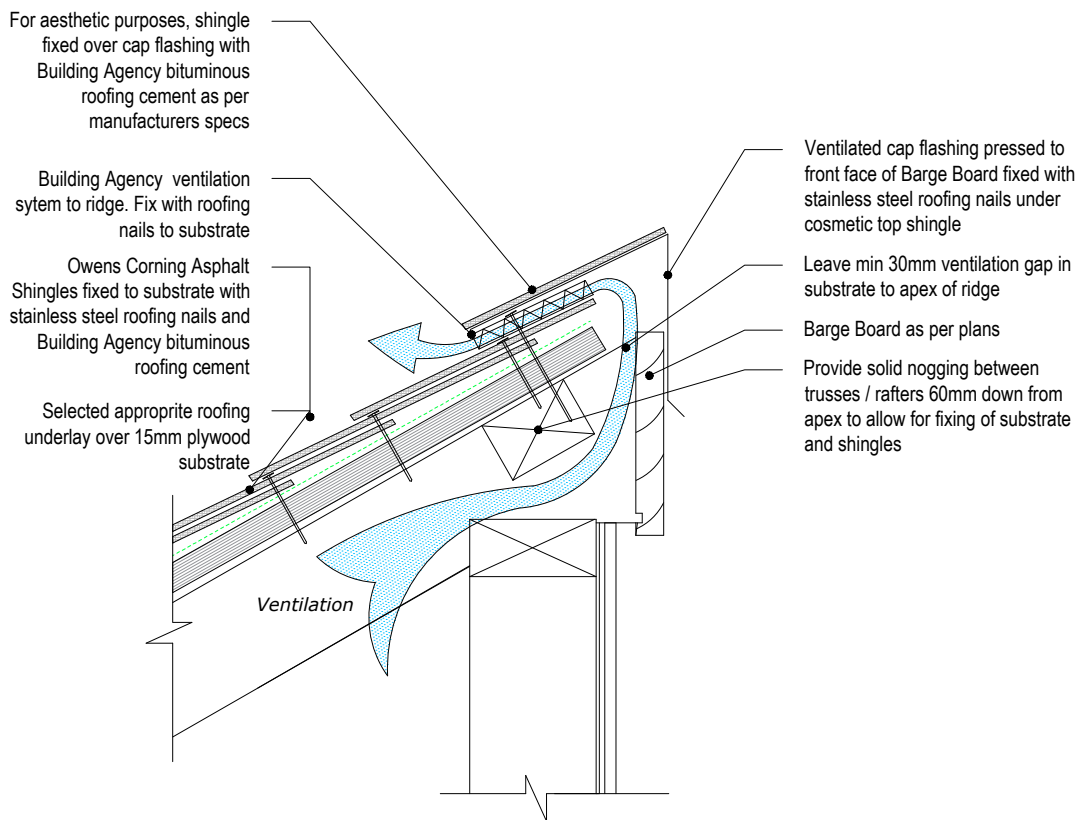
Building wrap to be laid over flashing  
 Butynol or EPDM apron flashing to provide approx 150mm cover to the shingle weathering strip (May vary depending on shingle profile)  
 For aesthetic purposes, shingle to be fixed over apron flashing with Building Agency bituminous roofing cement as per manufacturers specs  
 Building Agency ventilation system to apron flashing. Fix with stainless steel roofing nails to substrate  
 Building Agency Owens Corning Asphalt Shingles fixed to substrate with stainless steel roofing nails and Building Agency bituminous roofing cement  
 Selected appropriate roofing underlay over 15mm plywood substrate

Ventilation

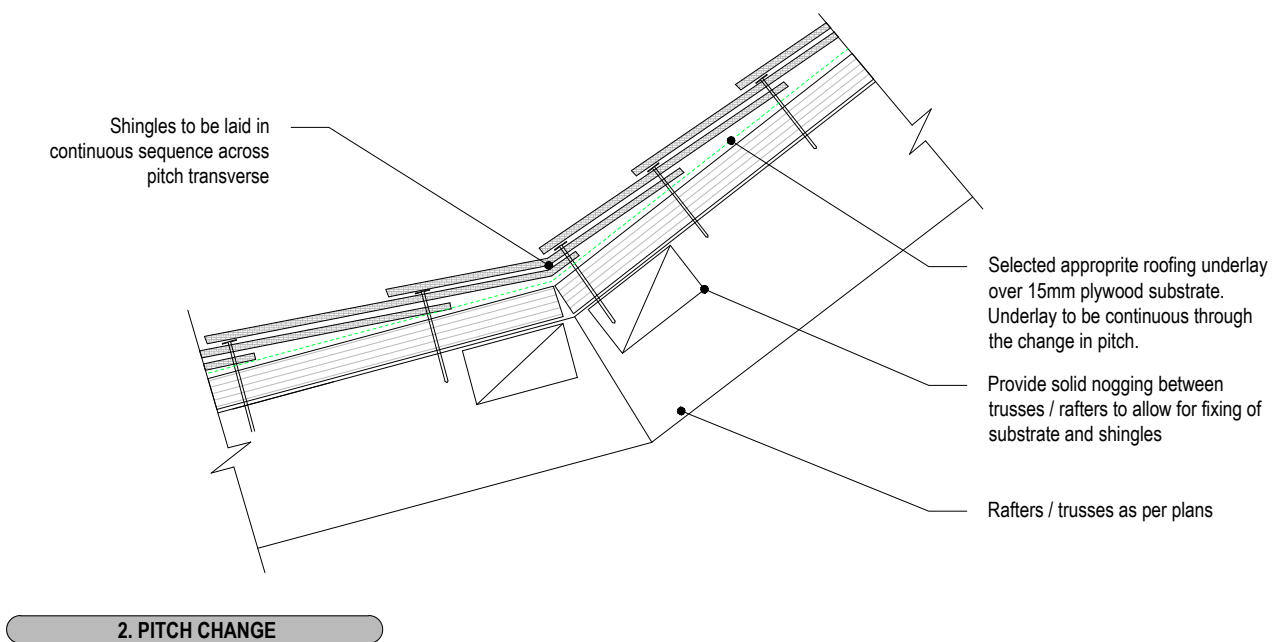
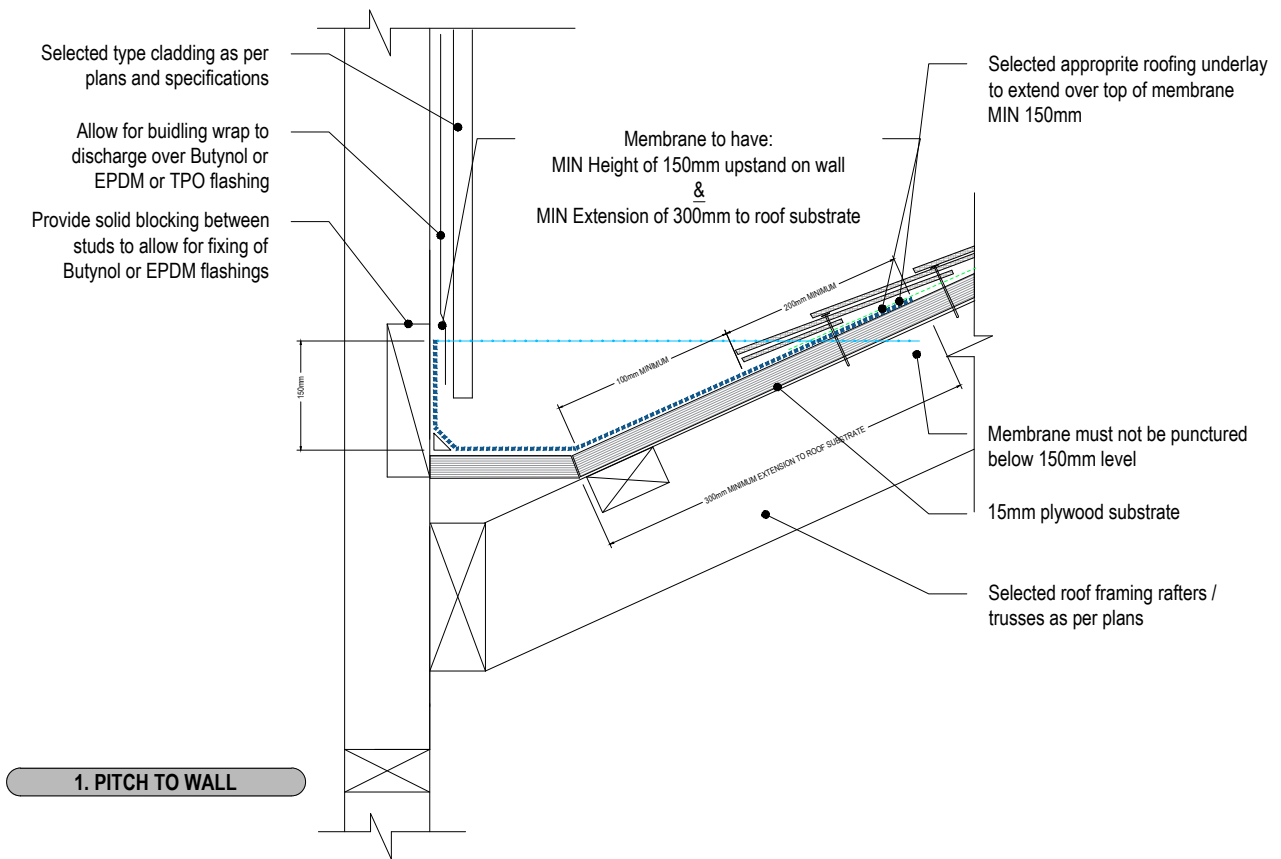
**2. VENTED APRON FLASHING**



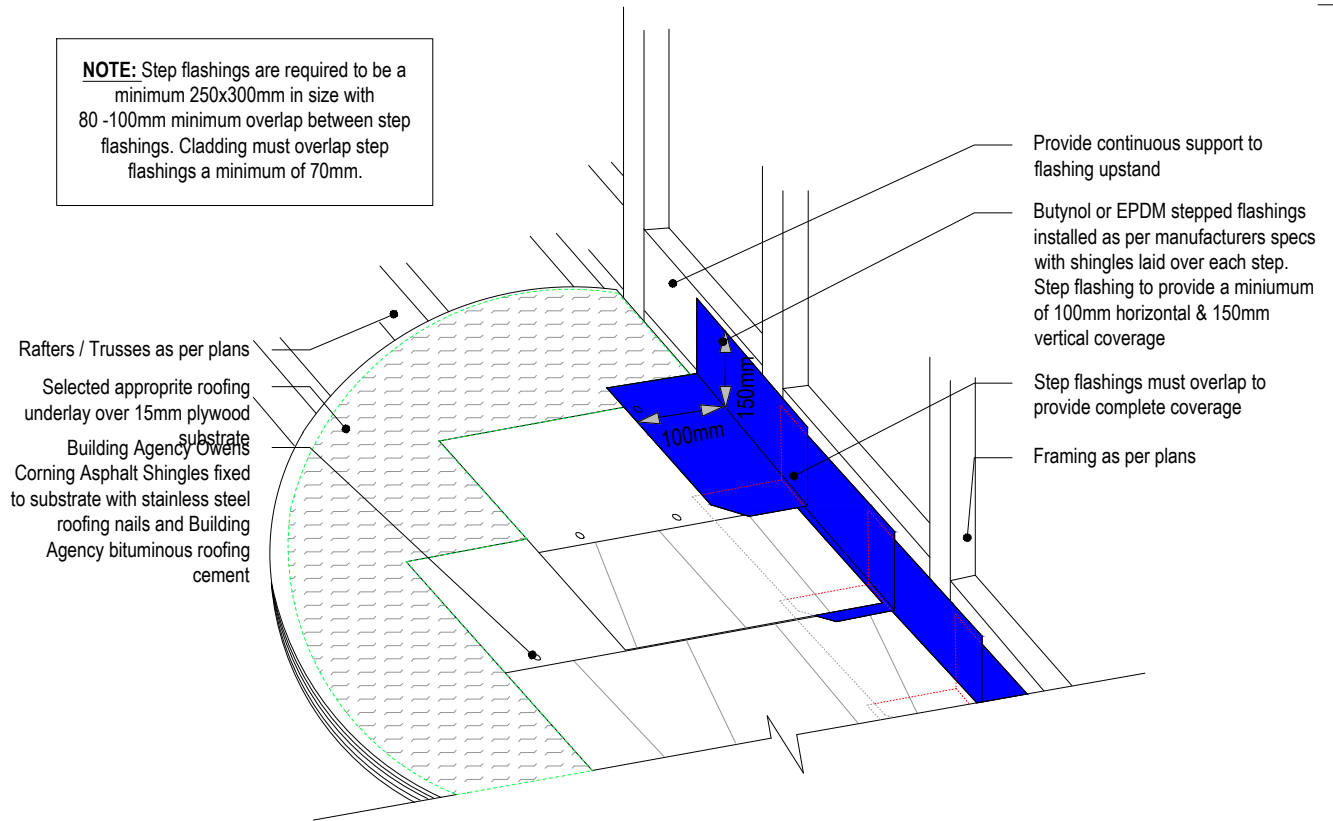
**1. ROOF TO WALL AT RIDGE**



**2. VENTED ROOF TO WALL AT RIDGE**



**NOTE:** Step flashings are required to be a minimum 250x300mm in size with 80 -100mm minimum overlap between step flashings. Cladding must overlap step flashings a minimum of 70mm.



**1. STEP FLASHING**

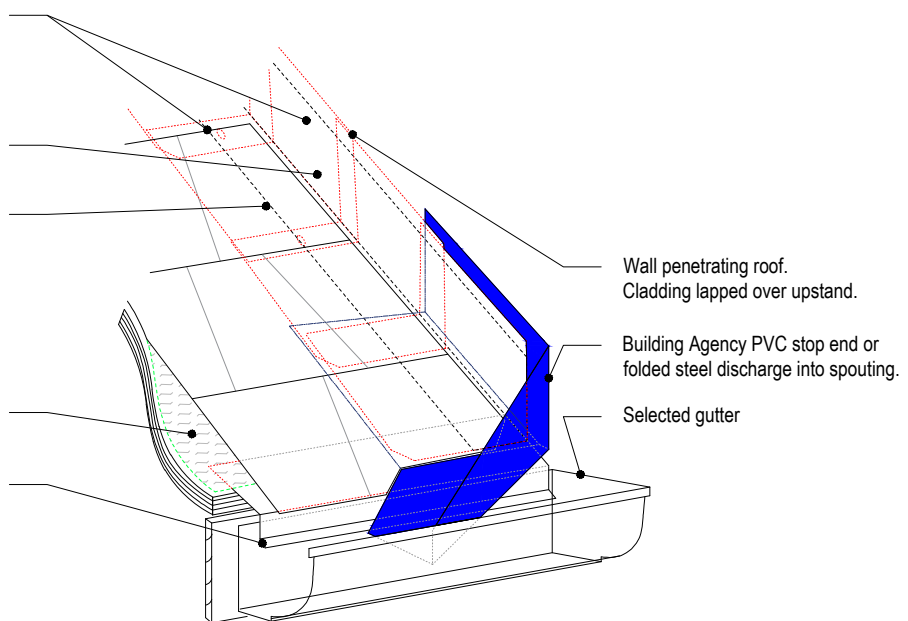
Butynol or EPDM or upstand flashings installed as per manufacturers specs with shingles laid over

**STEP 1.** Provide MIN 150mm upstand to flashing

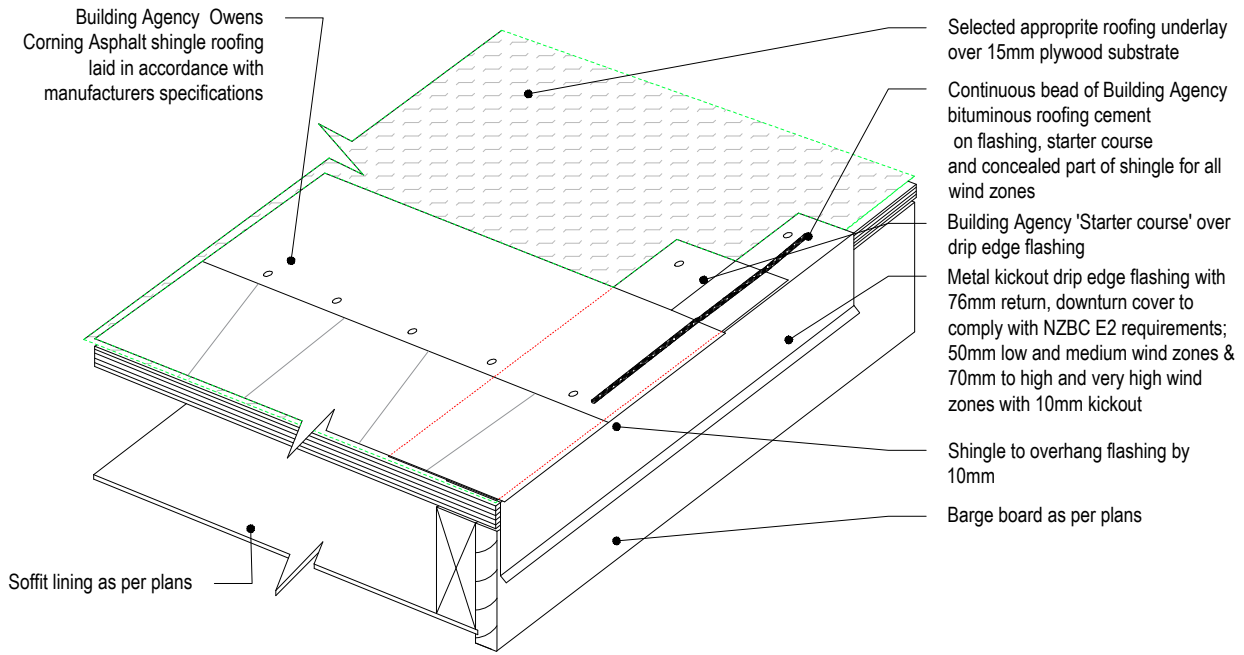
**STEP 2.** Step flashings are required to be a minimum 250x300mm in size with 80 -100mm minimum overlap between step flashings. Cladding must overlap step flashings a minimum of 70mm.

Selected appropriate roofing underlay over 15mm plywood substrate

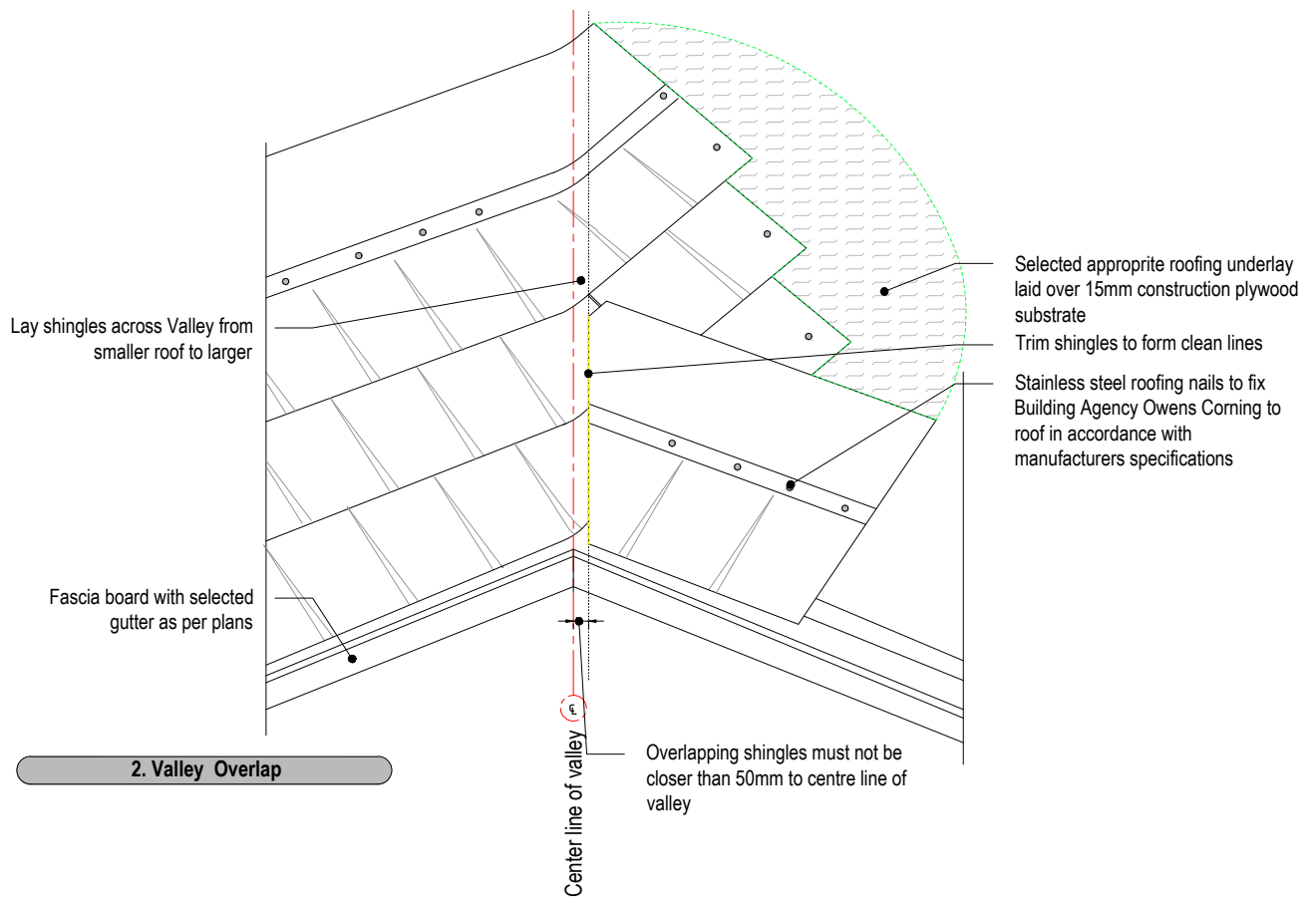
Drip edge flashing with min 90mm return and 20mm face with 10mm kick out



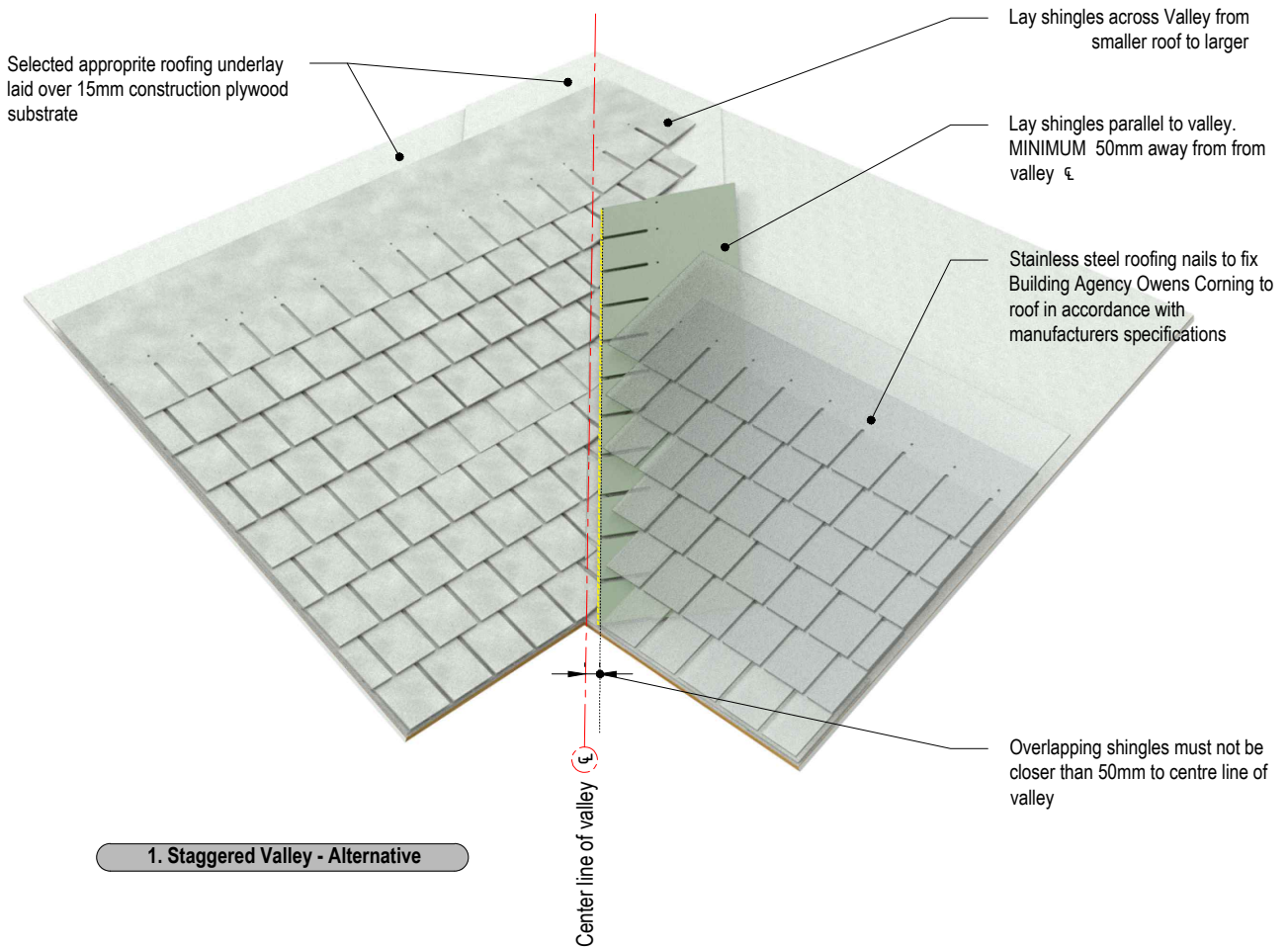
**2. GUTTER TO WALL JUNCTION**

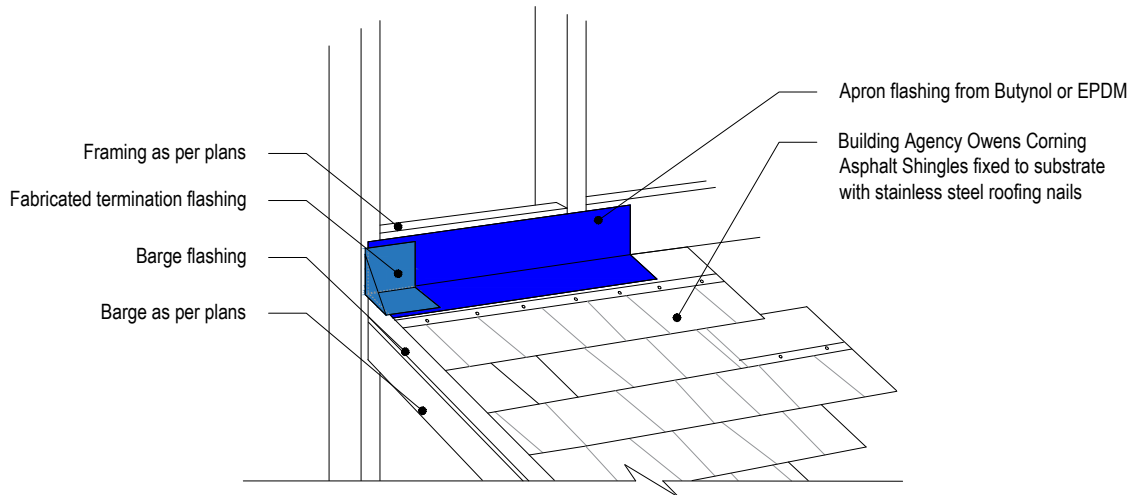


## 1. BARGE END

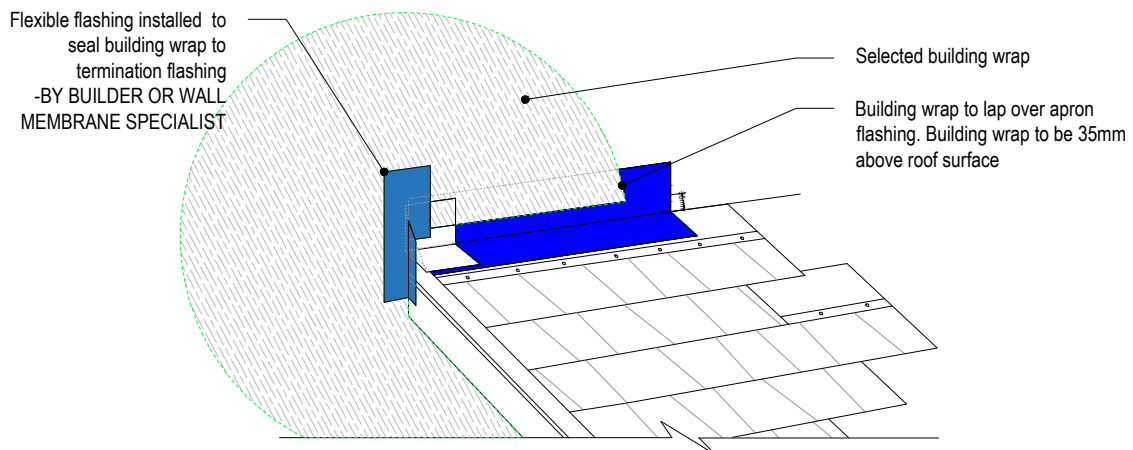


## 2. Valley Overlap

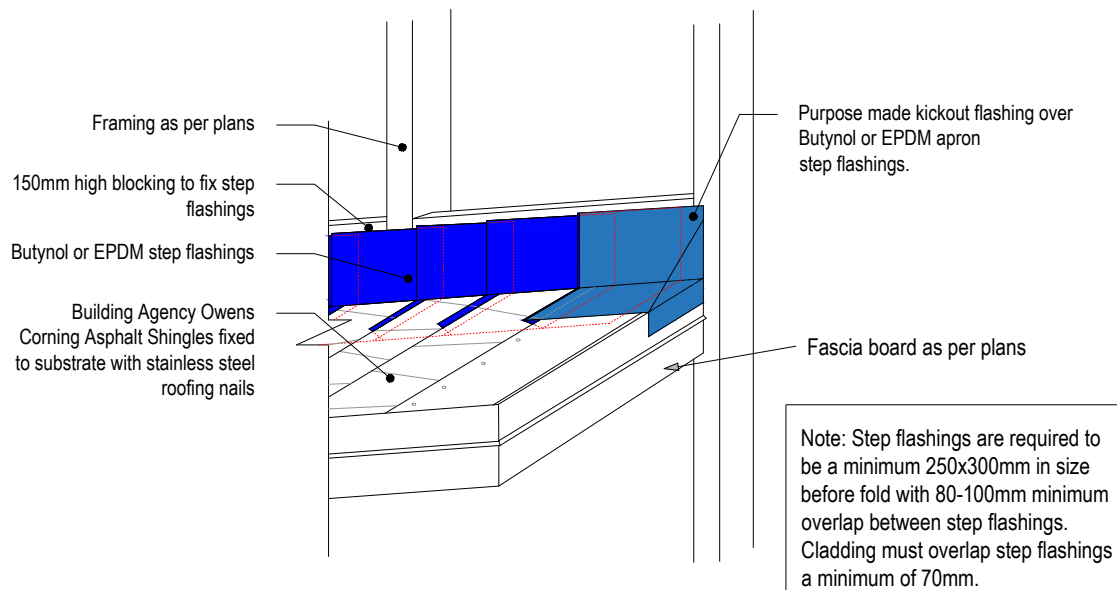




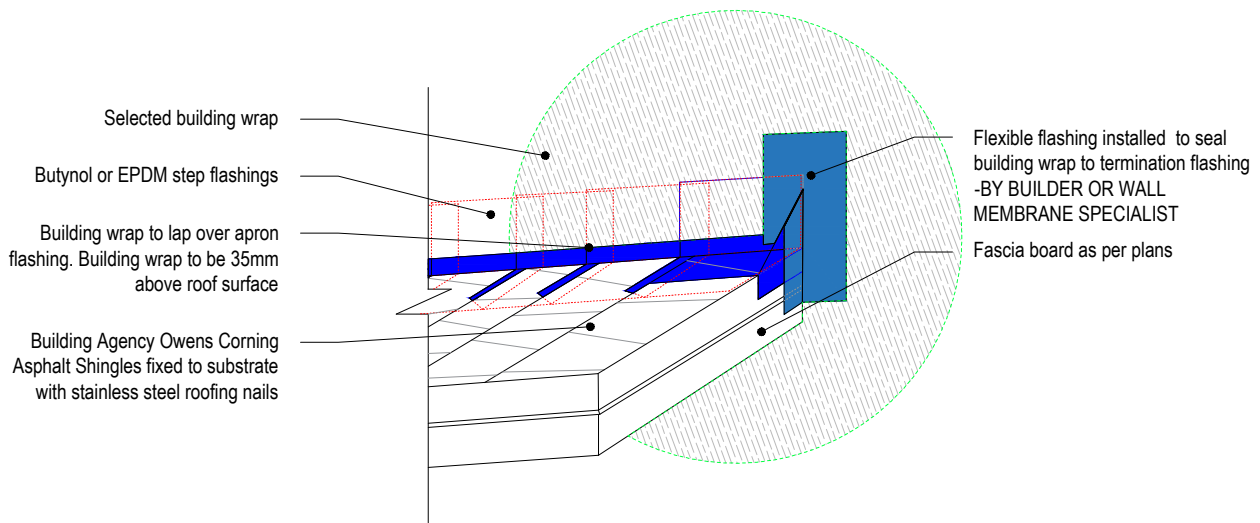
**STEP 1. APRON TERMINATION FLASHING**



**STEP 2. APRON TERMINATION FLASHING**

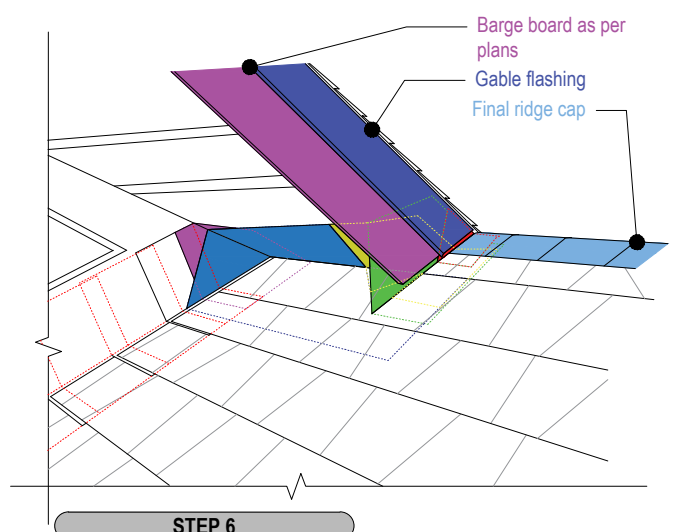
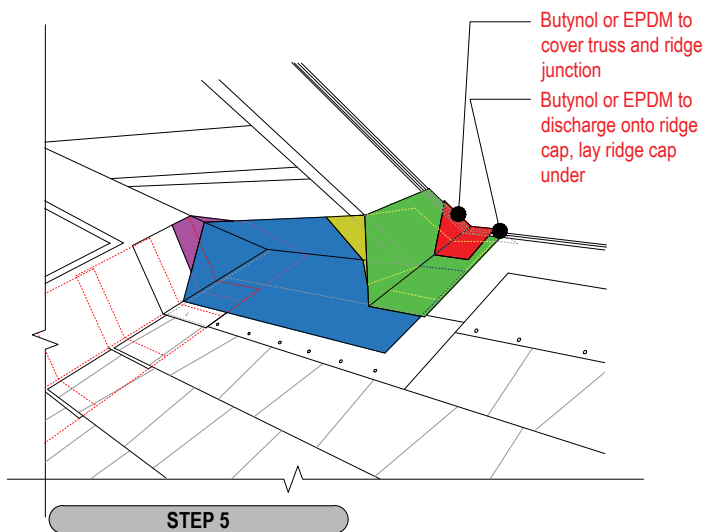
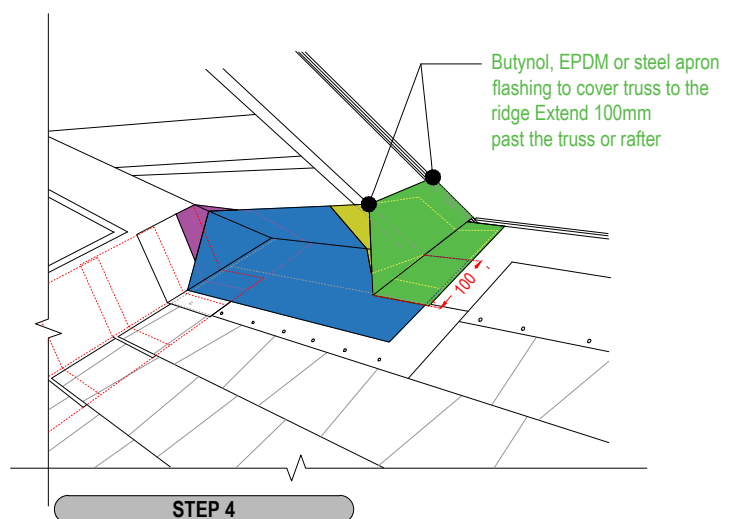
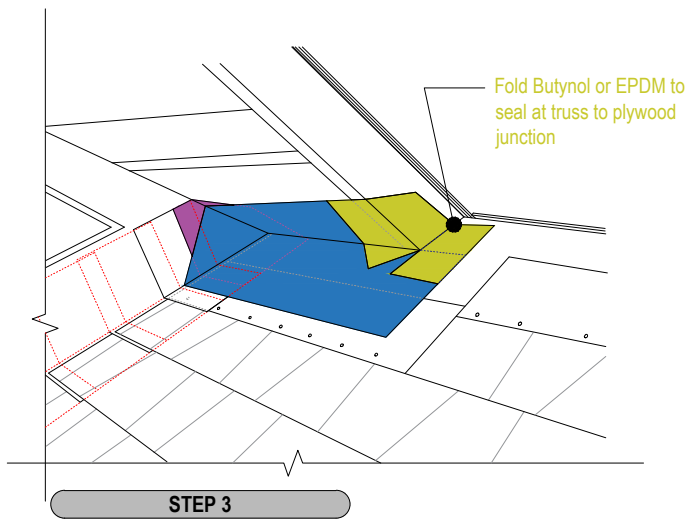
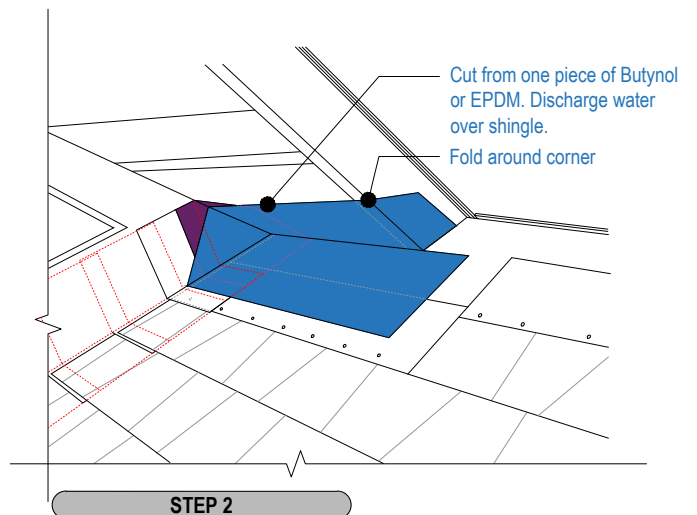
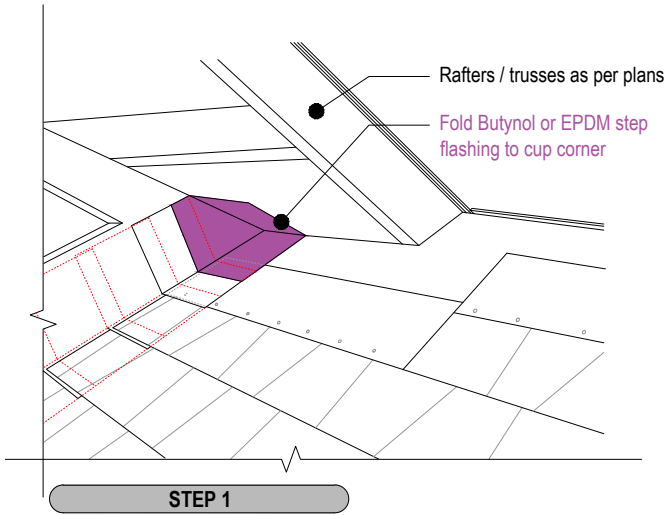


**STEP 1. KICKOUT FLASHING**

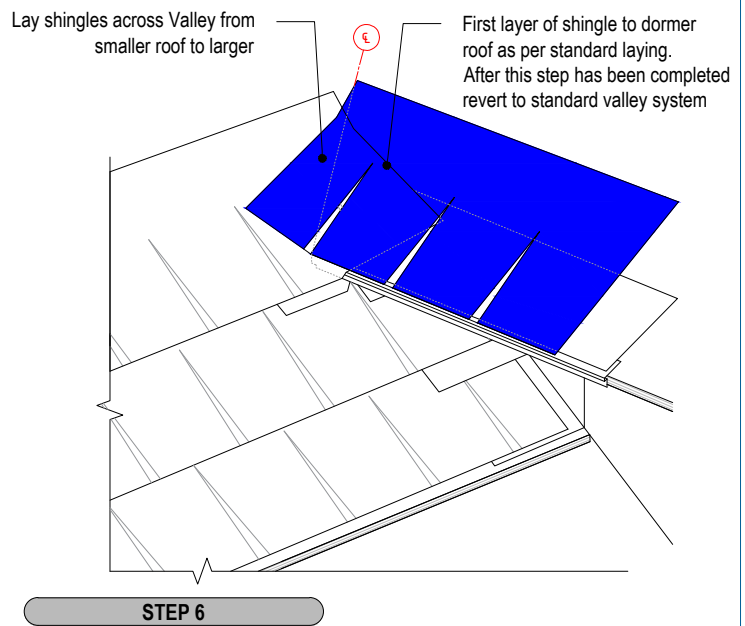
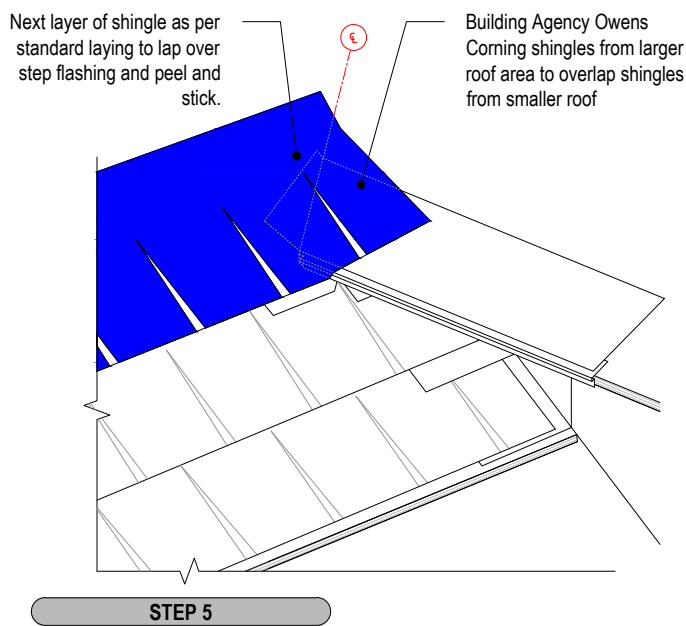
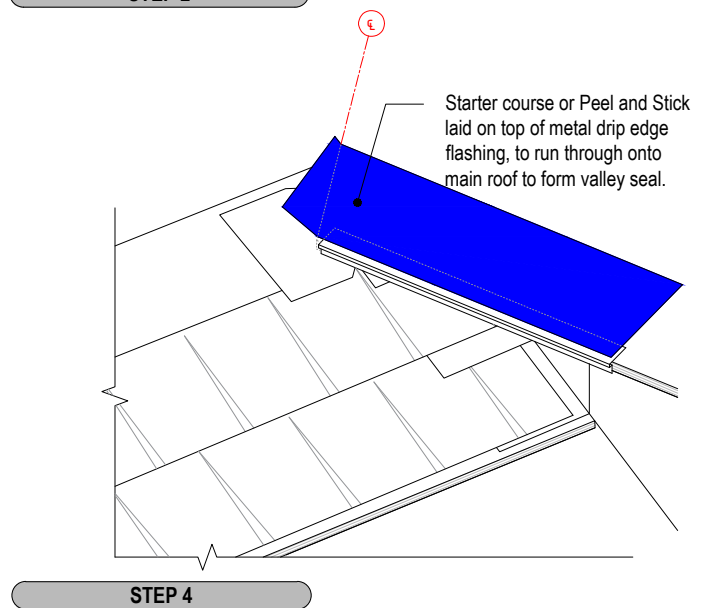
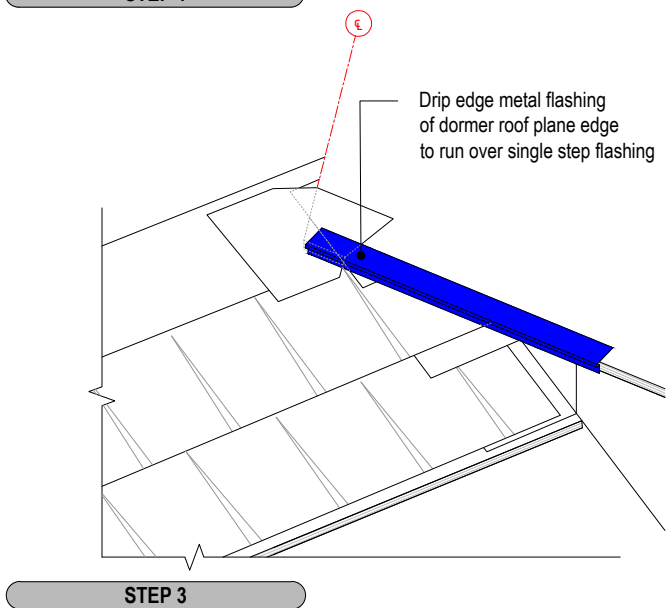
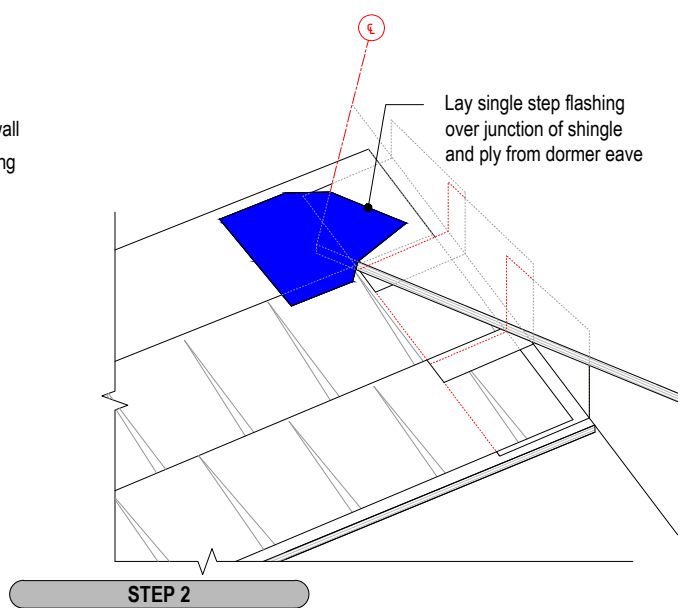
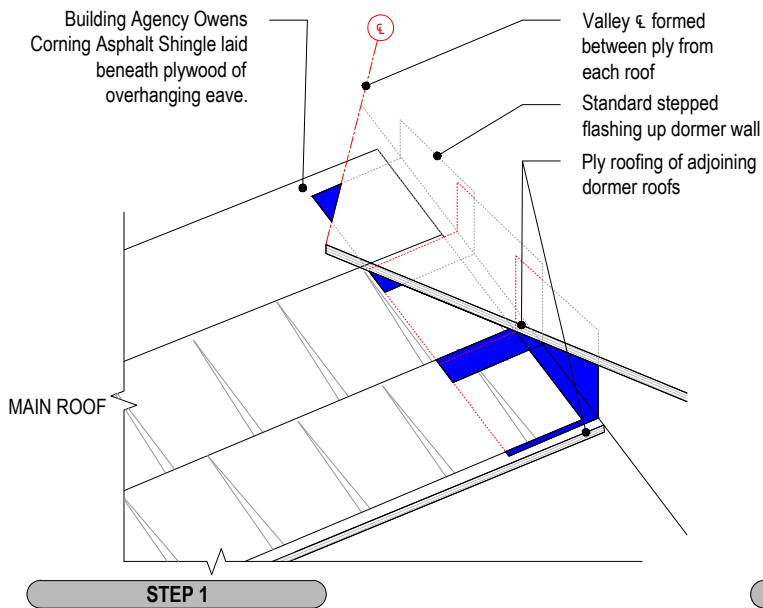


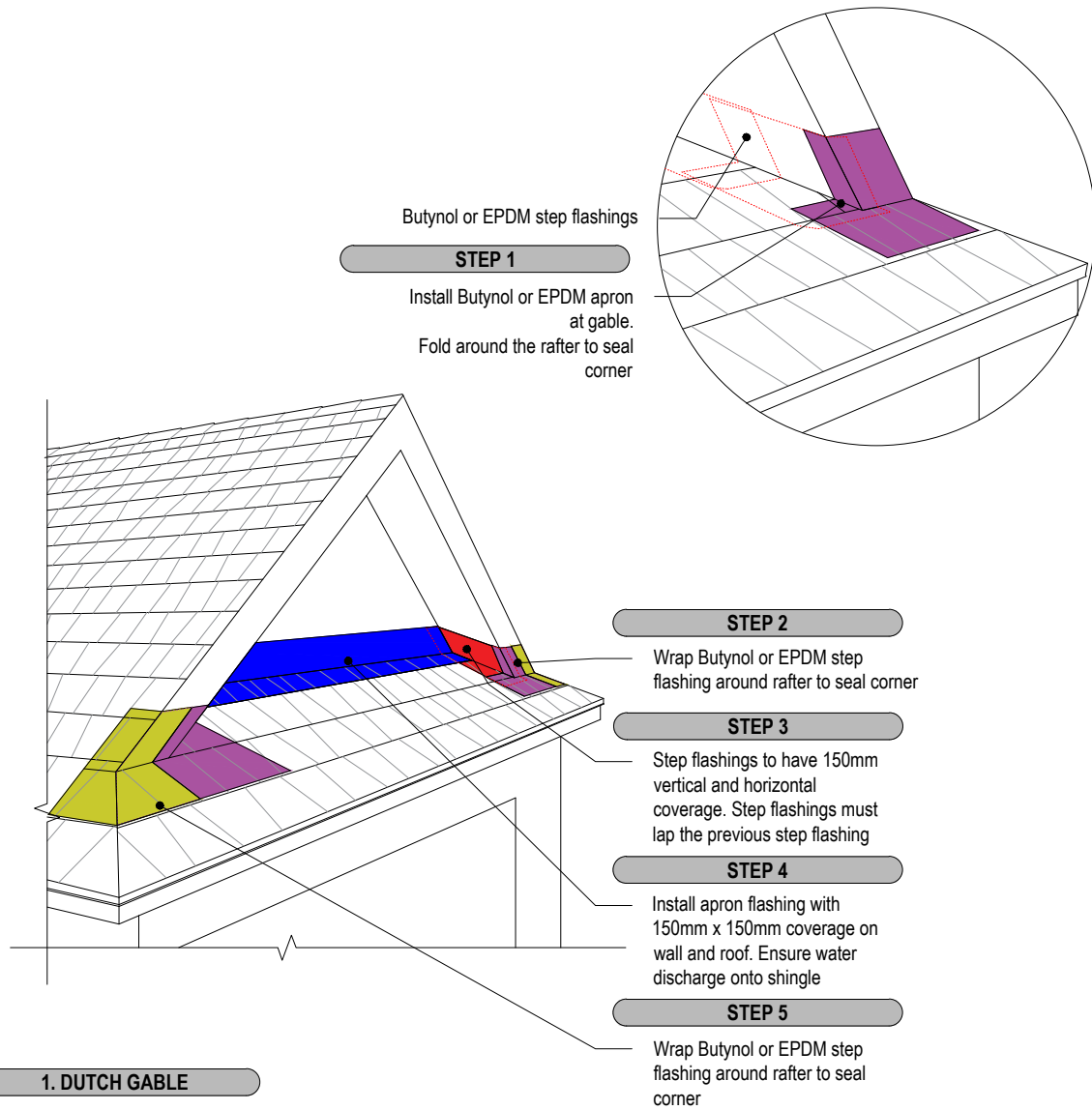
**STEP 2. KICKOUT FLASHING**



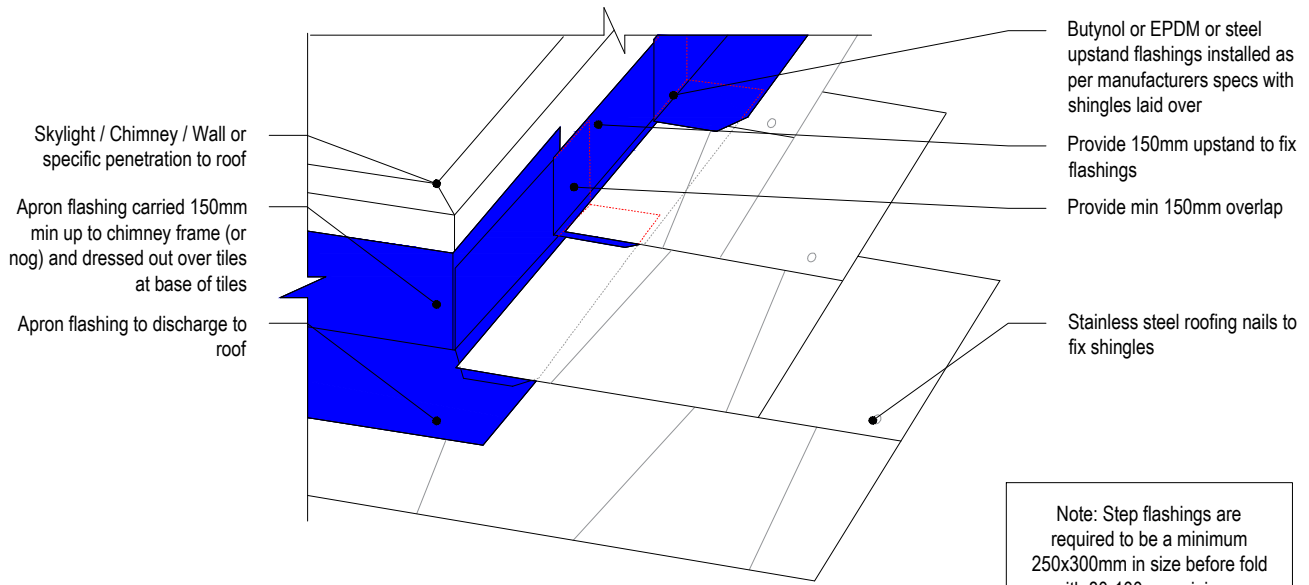


# Owens Corning - Asphalt Shingles - Typical Installation Detail Set





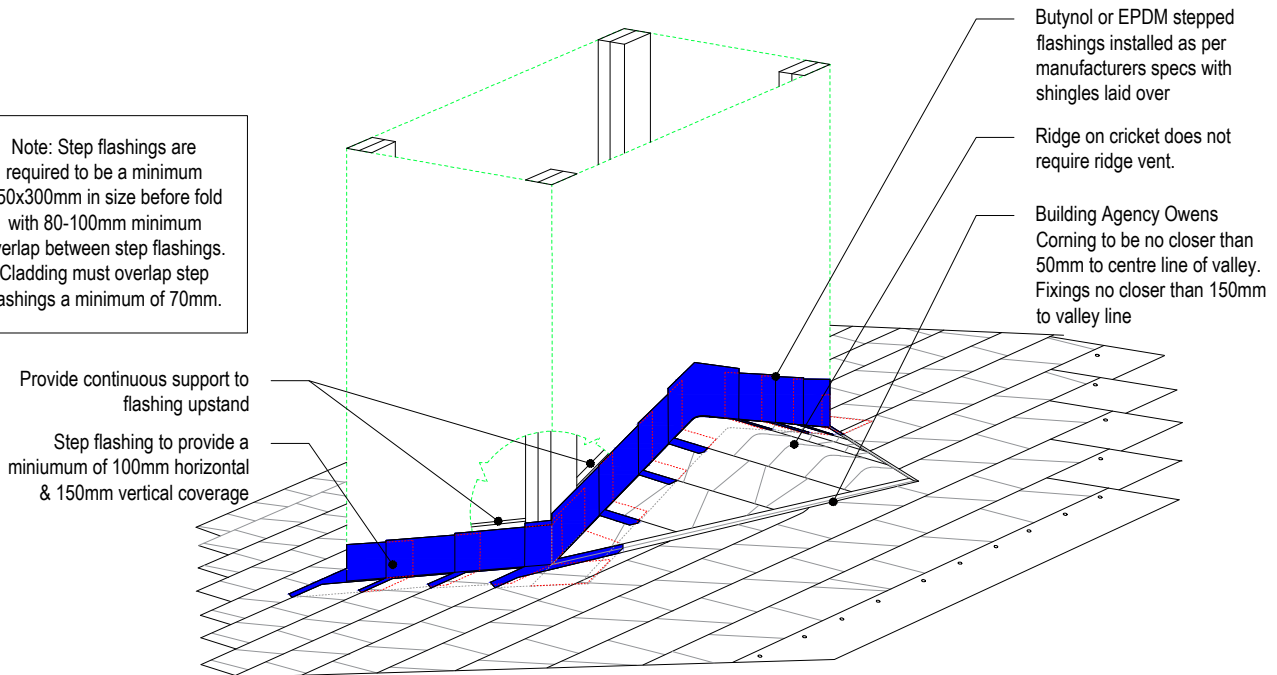
1. DUTCH GABLE



Note: Step flashings are required to be a minimum 250x300mm in size before fold with 80-100mm minimum overlap between step flashings. Cladding must overlap step flashings a minimum of 70mm.

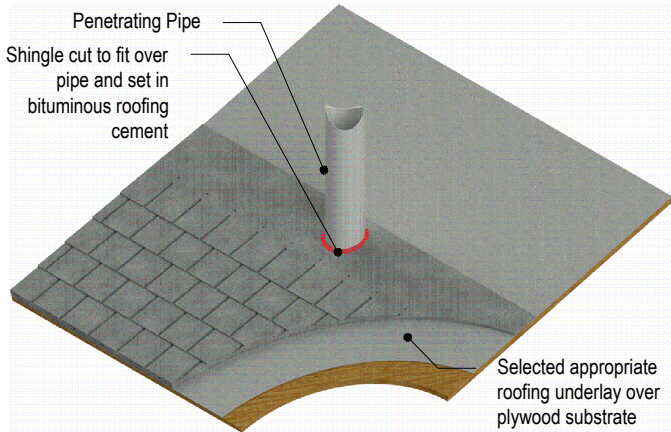
**1. UPSTAND PENETRATION**

Note: Step flashings are required to be a minimum 250x300mm in size before fold with 80-100mm minimum overlap between step flashings. Cladding must overlap step flashings a minimum of 70mm.

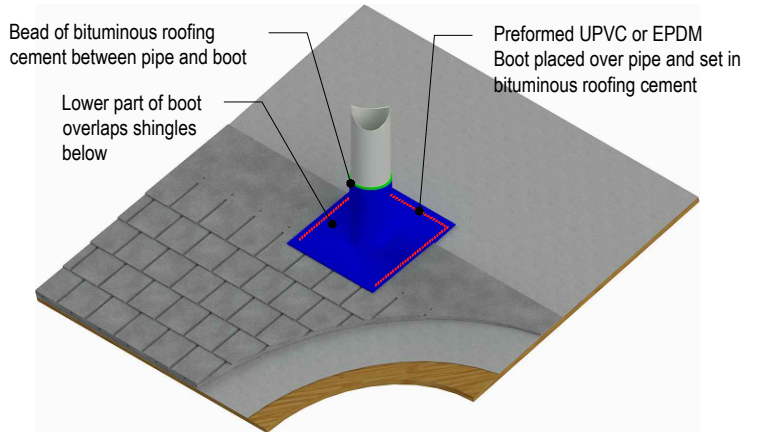


**2. CHIMINEY CRICKET**

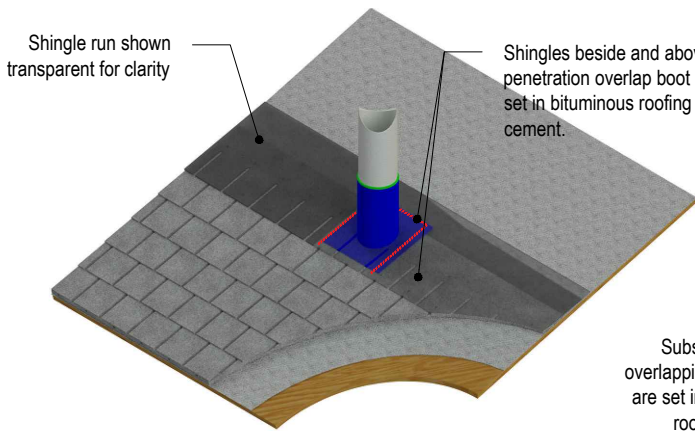
**1. PIPE PENETRATION**



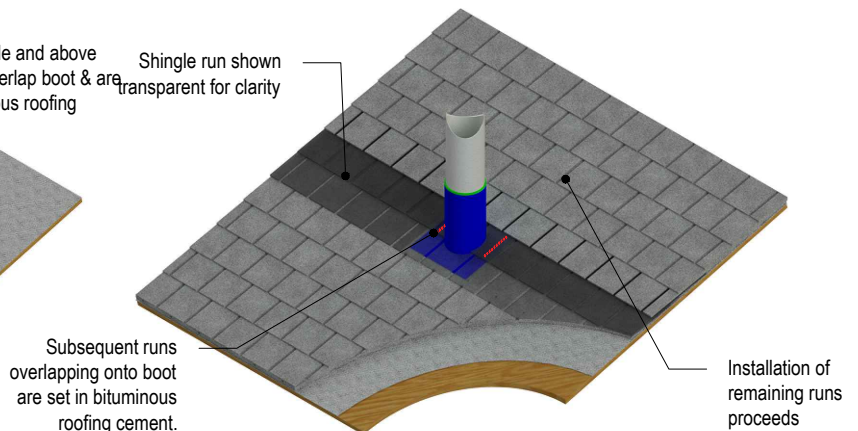
**STEP 1**



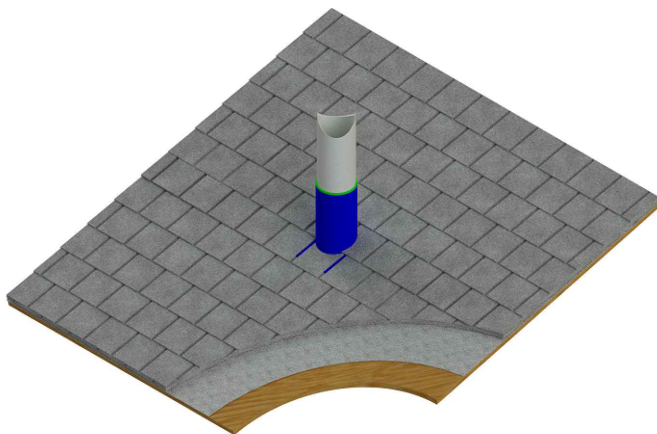
**STEP 2**



**STEP 3**



**STEP 4**



**FINISHED PENETRATION**

Typical mount bracket - Slide under top layer of shingles allowing rainwater to run off to shingles below.

Counter sunk stainless steel screws, oversealed. Lift shingle to insert screws, do not penetrate top layer of shingles

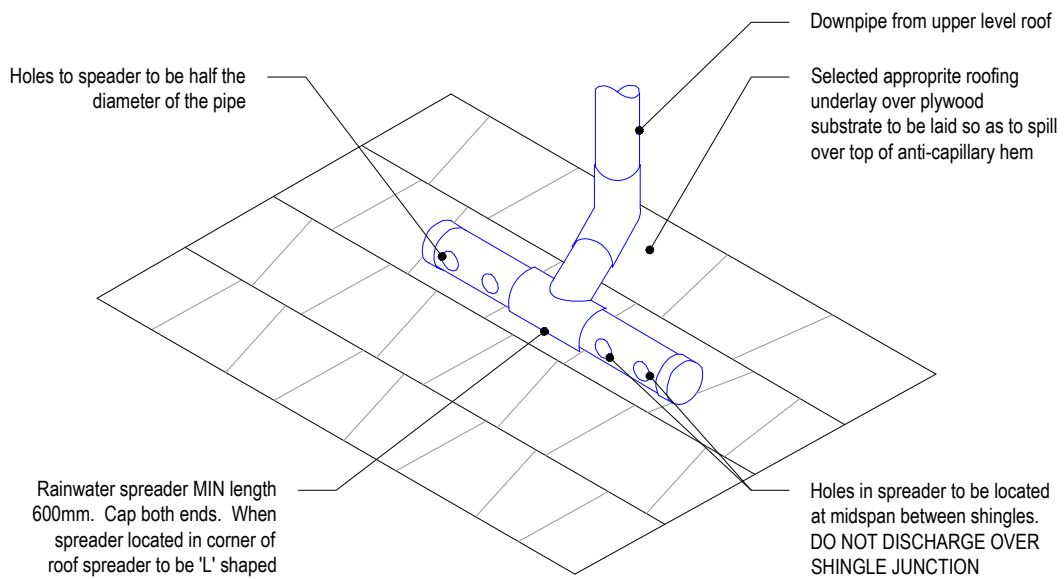
PV Solar panel or other light-weight roof mounted item

Owens Corning Asphalt Shingles fixed to substrate with stainless steel roofing nails and Building Agency bituminous roofing cement

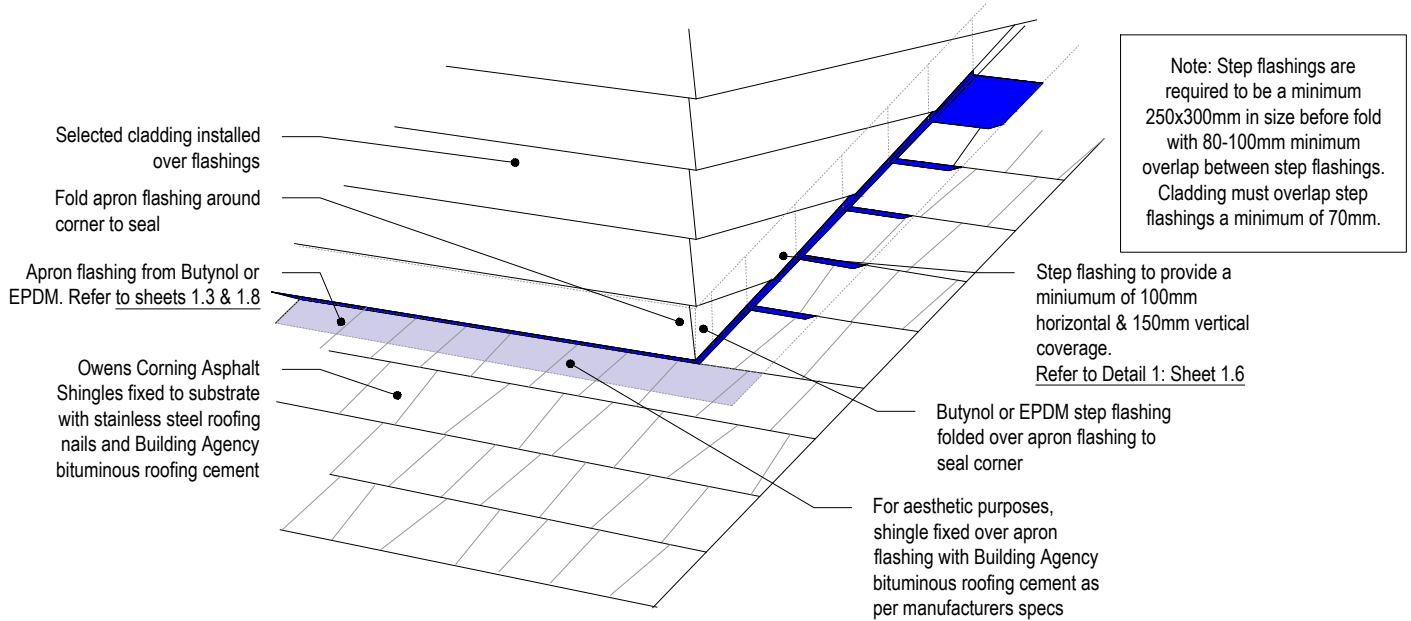
**2. PV SOLAR PANEL TYPE MOUNTING**

Down pipe spreaders are critical for water discharge onto the shingle roof

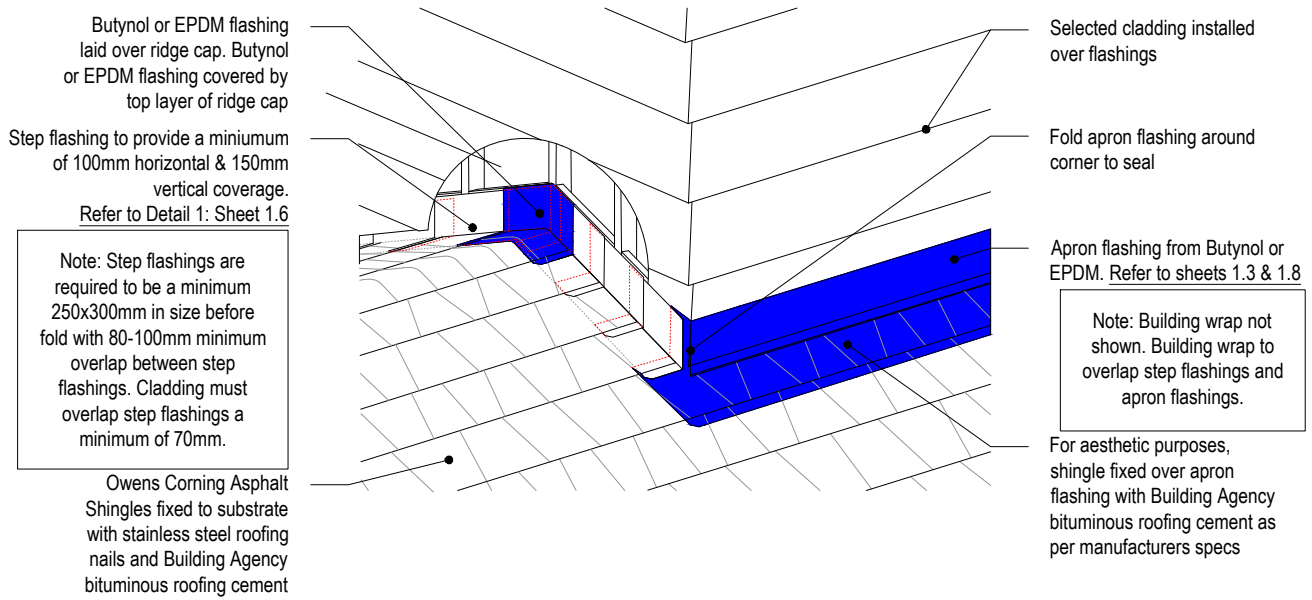
MAX 25m<sup>2</sup> catchment per spreader shall be permitted to discharge onto lower roof area



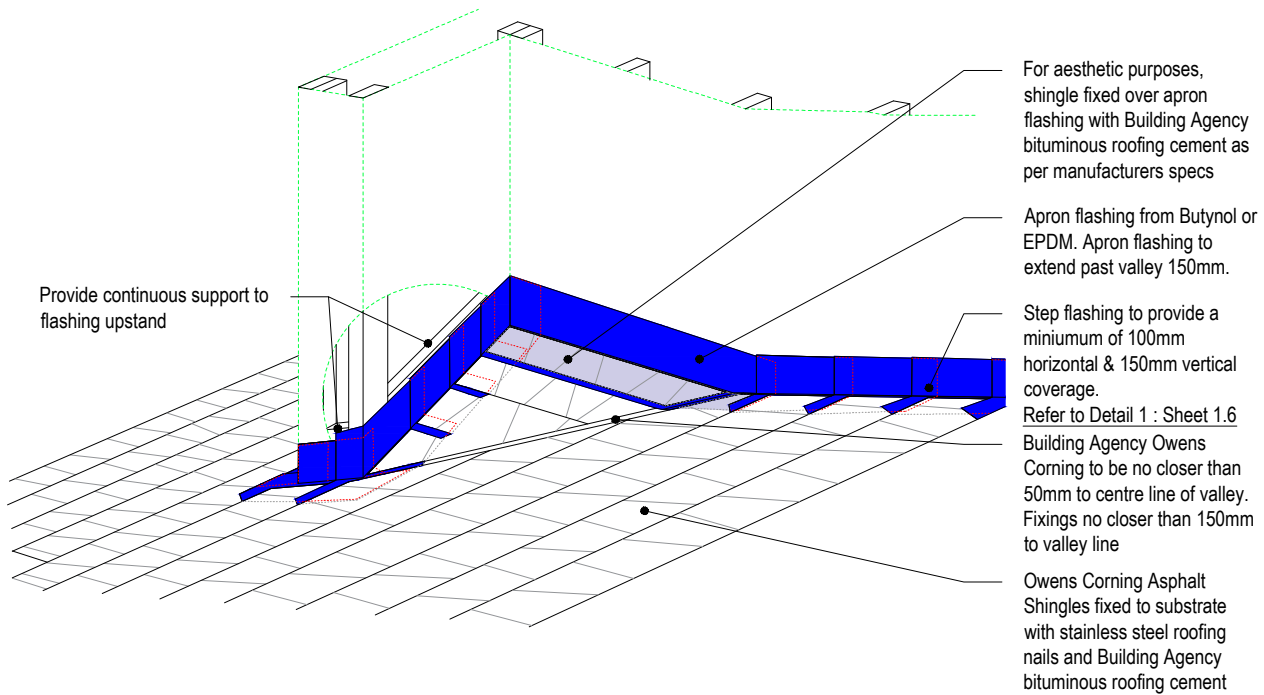
**1. DRAINAGE SPREADER**



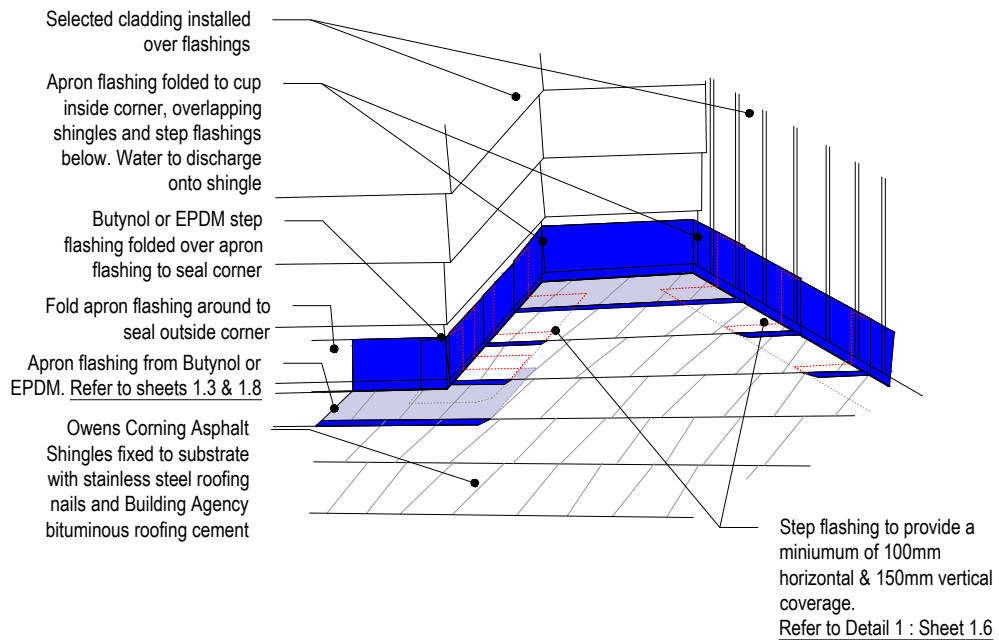
**1. WALL TO ROOF**



**2. WALL TO RIDGE**

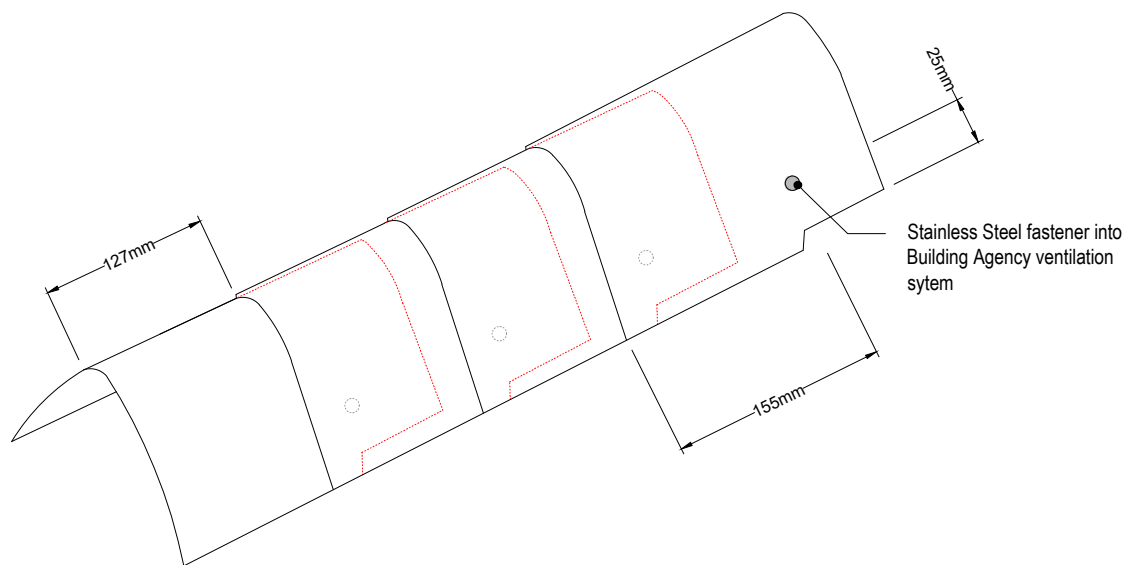
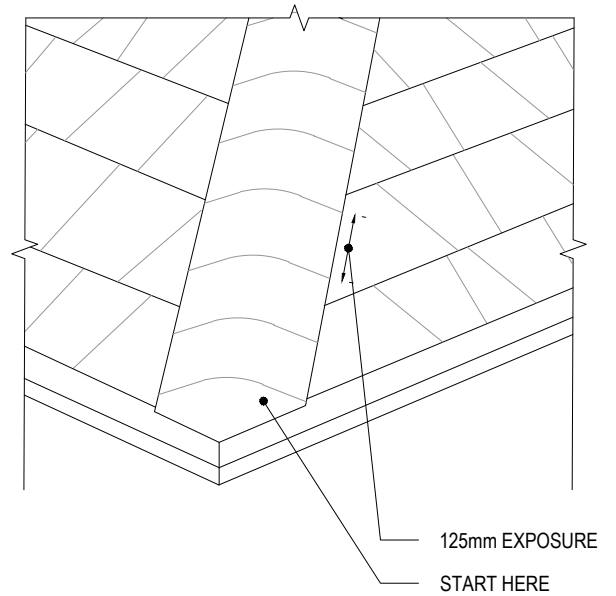
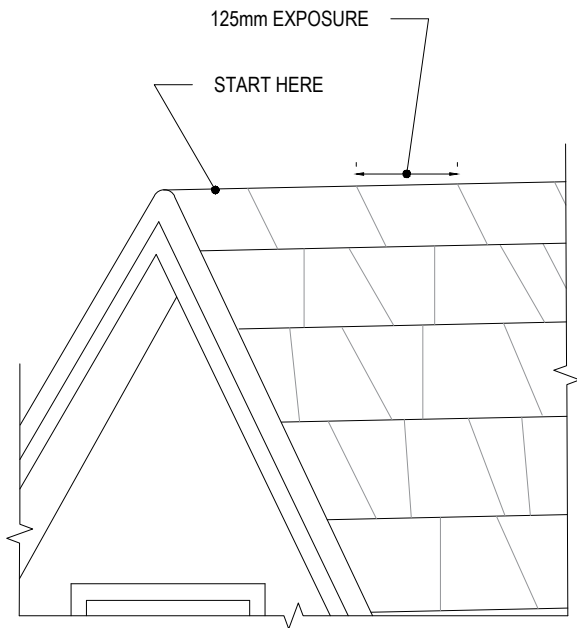


**1. INTERNAL VALLEY / CRICKET**

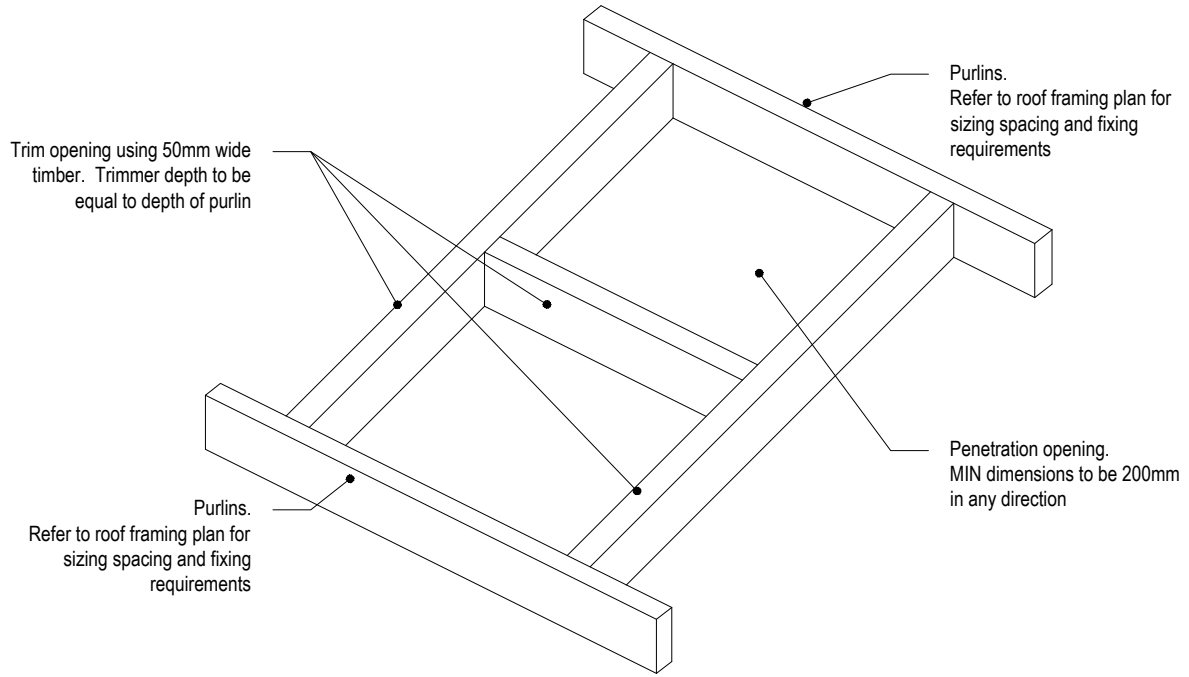


**2. WALL TO ROOF INTERNAL CORNER**

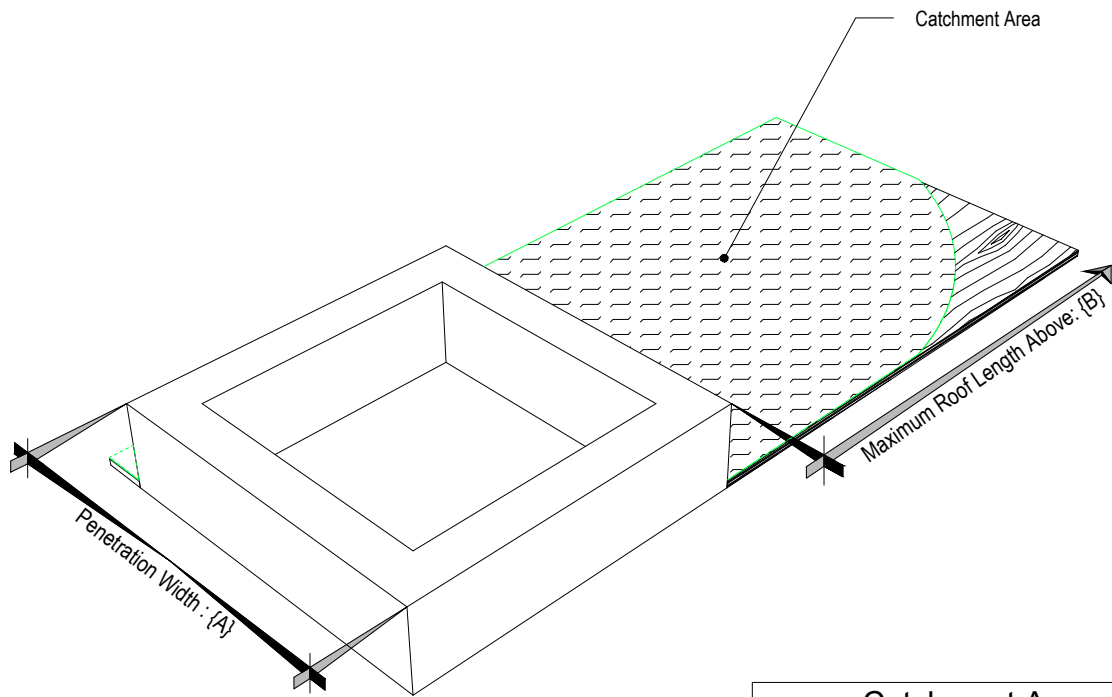




1. RIDGE & HIP CAPS



**1. APRON FLASHING DETAIL**



**2. VENTED APRON FLASHING DETAIL**

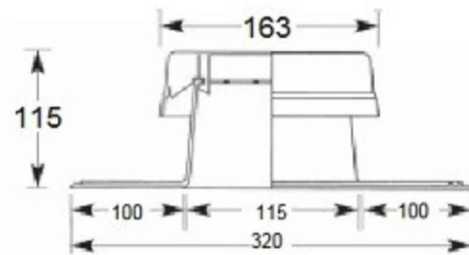
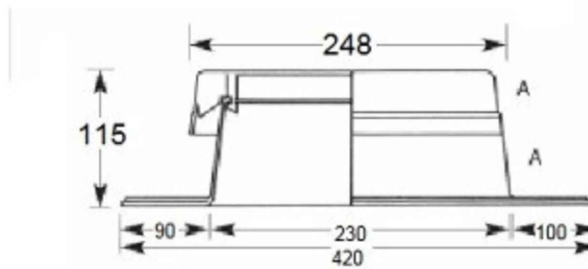
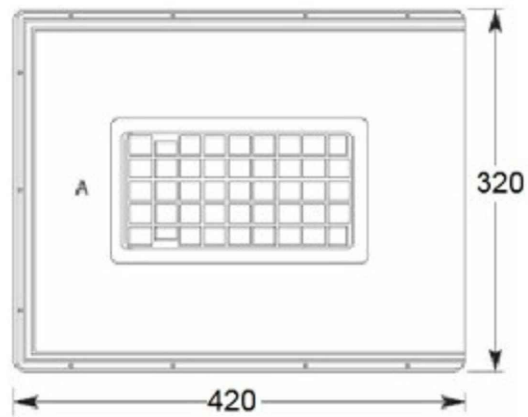
{A} Penetration Width	{B} Maximum Catchment Above
800 to 1200mm	4m
600 to 800mm	6m
400 to 600	8m
0 to 400	10m

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## Roof Pitch of 9° - 17°



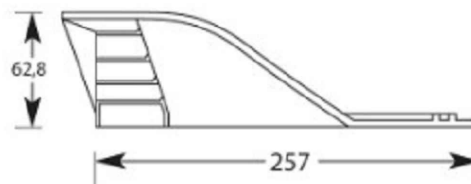
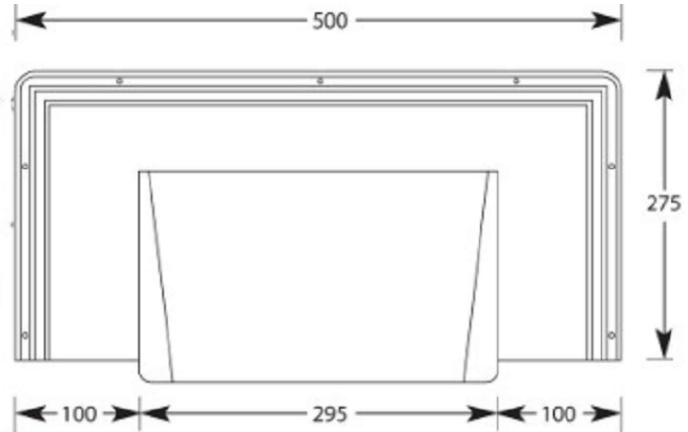
**HIGH PROFILE  
ROOF VENT**



## Roof Pitch of Over 17°



**LOW PROFILE ROOF VENT**

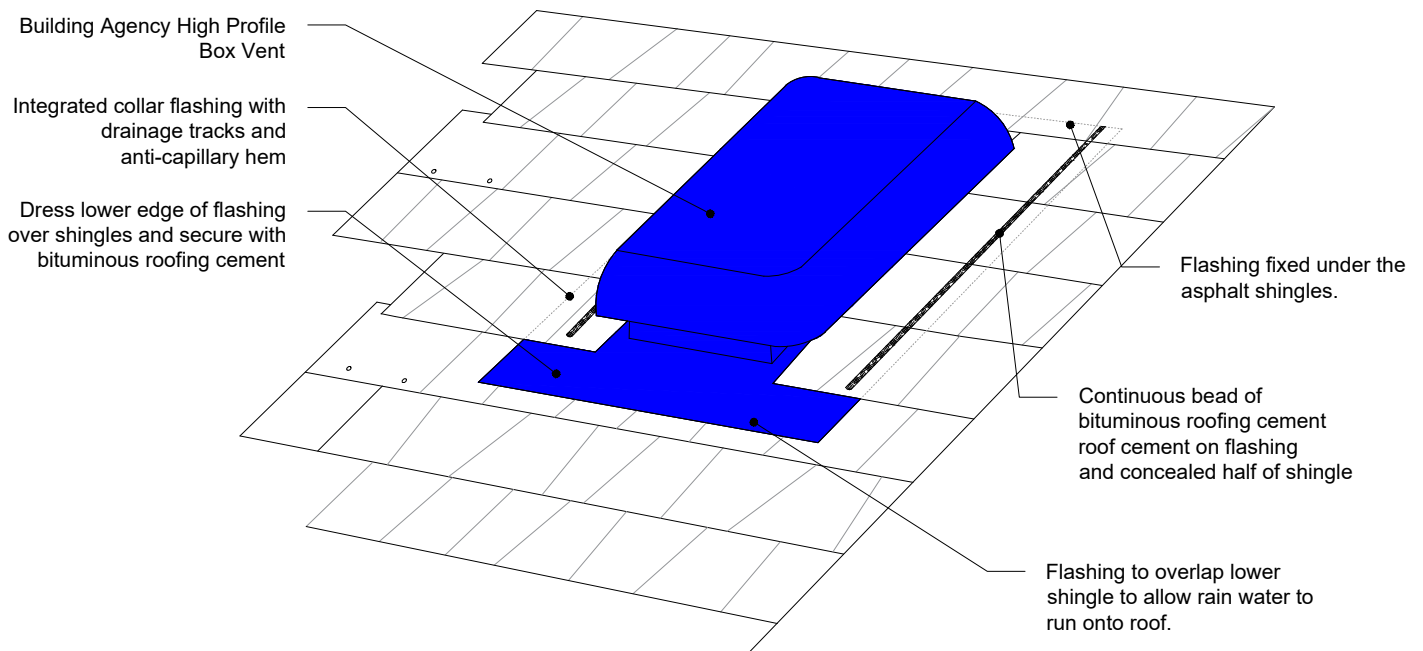


**Low profile and High profile vents:**

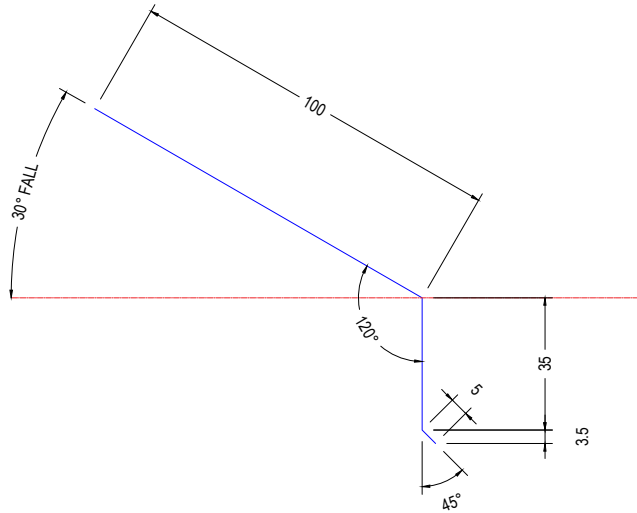
Vents must be used in areas where there are no ridges to vent the roof space.  
A hole is required to be cut into the plywood and the vents are to be fitted into the shingle rows to create a weather tight finish around them.

- High profile vents must be used where roof pitch is 17° or lower, this accessory provides 0.025m<sup>2</sup> Net Free Vent Area.
- Low profile vents must be used where roof pitch is over 17°, this accessory provides 0.018m<sup>2</sup> of Net Free Vent Area.

.: NOTE.:  
 CUT APPROPRIATE SIZE  
 OPENING IN UNDERLAY  
 AND SUBSTRATE FOR  
 VENT.

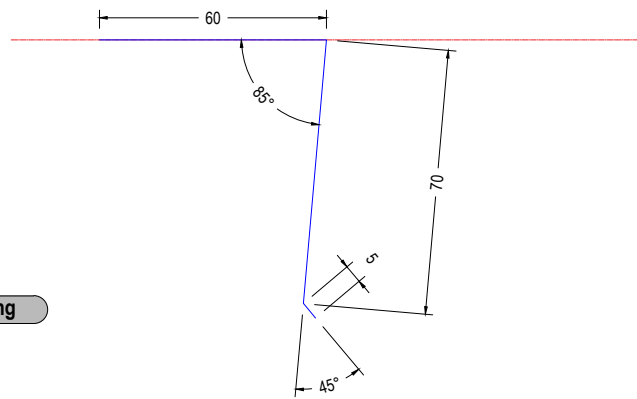


1. Standard Box Vent



**0.55 BMT**  
**Coloursteel,**  
**Copper,**  
**or**  
**Stainless Steel**

**1. Standard Eave Flashing**



**0.55 BMT**  
**Coloursteel,**  
**Copper,**  
**or**  
**Stainless Steel**

**2. Standard Barge Flashing**